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SOCIAL HOUSING IN CAMPO GRANDE, BRAZIL

J R F ORTALE

PhD

2017

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SOCIAL HOUSING IN CAMPO GRANDE, BRAZIL

JOÃO ROBERTO
DE FREITAS ORTALE

A thesis submitted in partial fulfilment of the requirements of the University of Northumbria at Newcastle of the degree of Doctor of Philosophy

Research undertaken in the Faculty of Architecture and Built Environment

June 2017

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Abstract

The number of social housing developments in the city of Campo Grande, Brazil, has undergone a significant growth over the past few years. Between 2014 and 2016, averages of 3,000 new homes per year have been constructed in the city, which has around 860,000 inhabitants. However, there seems to be a mismatch between the provision and residents' needs. This research investigates the history of housing for the lower income people in Brazil; and its development in the city. The theoretical perspective focuses on the concept of community and the nature of home; and the data collection analyses whether these are being delivered in practice.

The studies on the history of housing for lower income people in Brazil and its development in Campo Grande identified top down strategies adopted by the government and local authority. By contrast, the investigations of community and home development demonstrate that the residents' views should be incorporated into any development strategy.

The data collection was based in six social housing estates in the city, built between 2011 and 2015, using both quantitative and qualitative methods. The first stage was an investigation of documentation regarding social housing programmes and the local regulations. The second phase involved questionnaires with 464 residents; and the final part centred on interviews with heads of departments in the local authority and 36 residents. The data collection discovered issues regarding a lack of community facilities, and inflexibility in the layout and materials of the houses; especially regarding alterations and extensions.

The outcome of the thesis is a set of Guidelines for the Development of Social Housing within the My House My Life Programme, to supplement the local regulations in Campo Grande. They provide guidance from the layout of the estate, to the design of the houses. They have been evaluated by the local authority departments, who have responded positively, and stated that they are willing to incorporate them in future proposals.

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Acknowledgements

This PhD thesis is the result of personal hard work and great collaboration that I have received from various people, who helped me during this journey. Firstly, I would like to express my profound gratitude to my team of supervisors, Bob Giddings and Sebastian Messer, for their great support, knowledge, patience, and motivation. They have always been available when I needed, and keen to help in any circumstance. I could not have had a better team to supervise me.

I would also like to thank CAPES Foundation, an agency under the Ministry of Education of Brazil, for their sponsorship, and for the unique opportunity given for me to pursue my PhD at Northumbria University. They have provided me with fantastic support over the four years of my research.

I am also sincerely grateful to the City Council of Campo Grande, especially the Social Housing Department – Emha, the Building Regulation Department – Semadur, and the Urban Planning Department – Planurb, for their immense contribution to my research. Special thanks to all the residents of the social housing estates who took part in my research, and provided a very important contribution to the work.

I would like to thank my parents Elisa Maria de Freitas and Jose Roberto Lima Ortale, who have always supported me in all the ways possible, and who have been truly present throughout my life. My profound gratitude goes to Lee Kenneth Taylor, who has proofread my entire thesis, and assisted me with the editing. Last, but not least, I would like to express how thankful I am to my family and friends in Campo Grande who helped me with the data collection.

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Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the Faculty Ethics Committee on 10 FEB 2014.

I declare the that the Word Count of this Thesis is 87,183 words

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Signature:

Date:

01 Jul 2018

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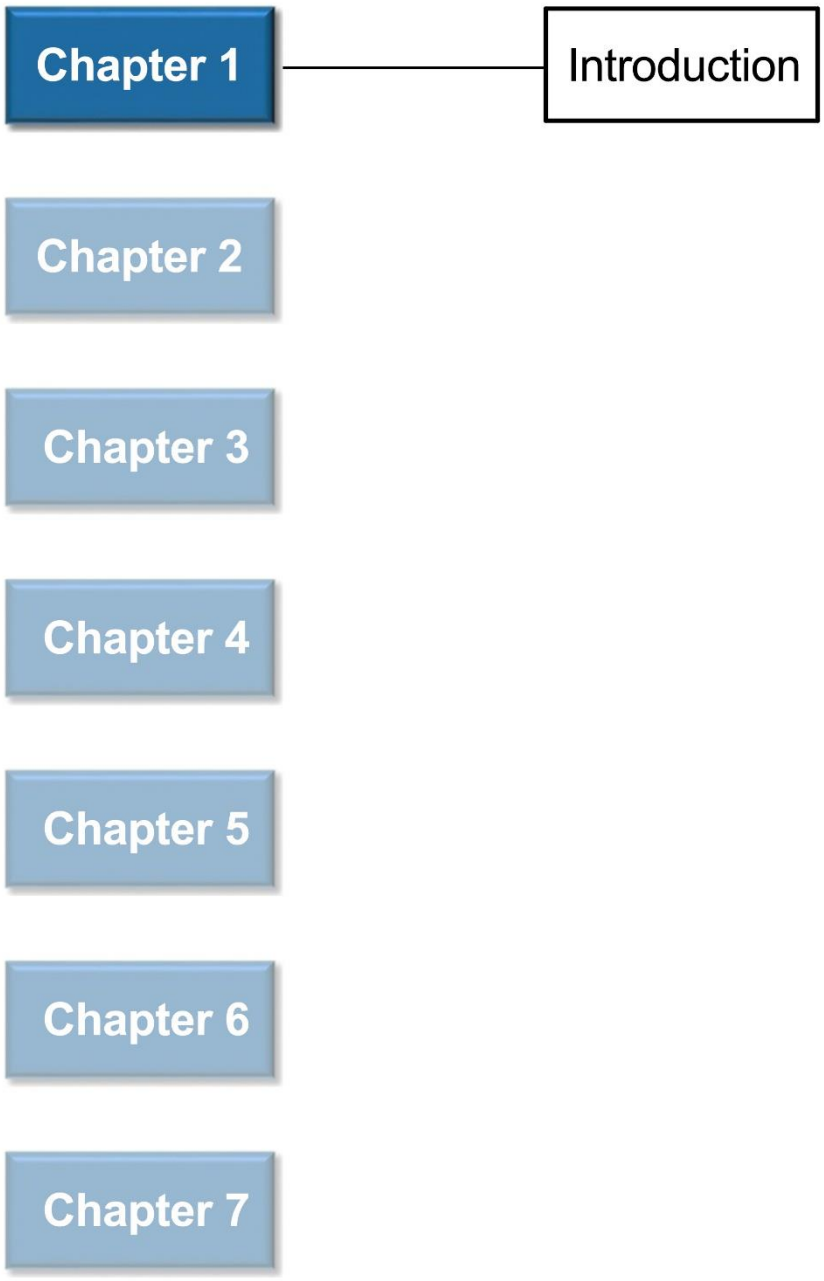
Chapter 1
Introduction
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Chapter 1: Introduction

This thesis presents research on the development of social housing in the city of Campo Grande, the capital city of one of the twenty-six states of Brazil. It investigates the current situation of social housing development in the city; identifies the development issues; carries out a supporting literature review; develops a theoretical framework; undertakes a data collection; and presents a framework of guidelines to improve the quality of social housing development. This chapter introduces the current situation for the research context, issues to be addressed, summary of research methodology, aims and objectives, and the structure of the thesis.

1.1 Context of the Area of Study – A Brief Presentation

Brazil, located in the east of South America, is the fifth largest country in the world, has approximately 207 million inhabitants, and covers an area of 8.5 million km² (Brazilian Institute of Geography and Statistics 2017). This continent-sized country borders every other country in South America, with the exception of Ecuador and Chile (see Figure 1-1). With a US$ 1.8 tri (£1.4 tri) gross domestic product (Trading Economics 2015; The World Bank 2015), Brazil is one of the ten greatest economies in the world. Nevertheless, the country is 79th in the ranking of Human Development Index (United Nations 2014).

Brazil has five distinct regions, which are identified by their location, climate, culture, economy, and demography. As a Federative Republic, the country is politically divided into twenty-six states, plus a capital district (Edwards 2008) (see Figure 1-2). The number of states in each region varies, as well as their sizes. The borders of the regions are defined by some of the borders of the states. The Centre-West region, which is composed of three states and the capital district, corresponds to 22% of the land of the country (Dicks 2002). However, with around 15.7 million inhabitants, the region counts only for 8% of the Brazilian population (Brazilian Institute of Geography and Statistics 2017).

Mato Grosso do Sul is the state with the smallest population of the Centre-West region – 2.7 million inhabitants. It is located on the border with Bolivia, Paraguay, and the two other states of the Centre-West. Its capital, Campo Grande, is located in the centre of the State (see Figure 1-3), and has a population of around 860,000

inhabitants. Campo Grande is also the richest and largest city in the State, in terms of both area and population (Brazilian Institute of Geography and Statistics 2017).

Figure 1-1 - Map of Brazil in South America

Source: Adapted from Brazilian Institute of Geography and Statistics (2017).

Figure 1-2 - Map of the regions and states, highlighting the Centre-West.
Source: Adapted from (Brazilian Institute of Geography and Statistics 2017).

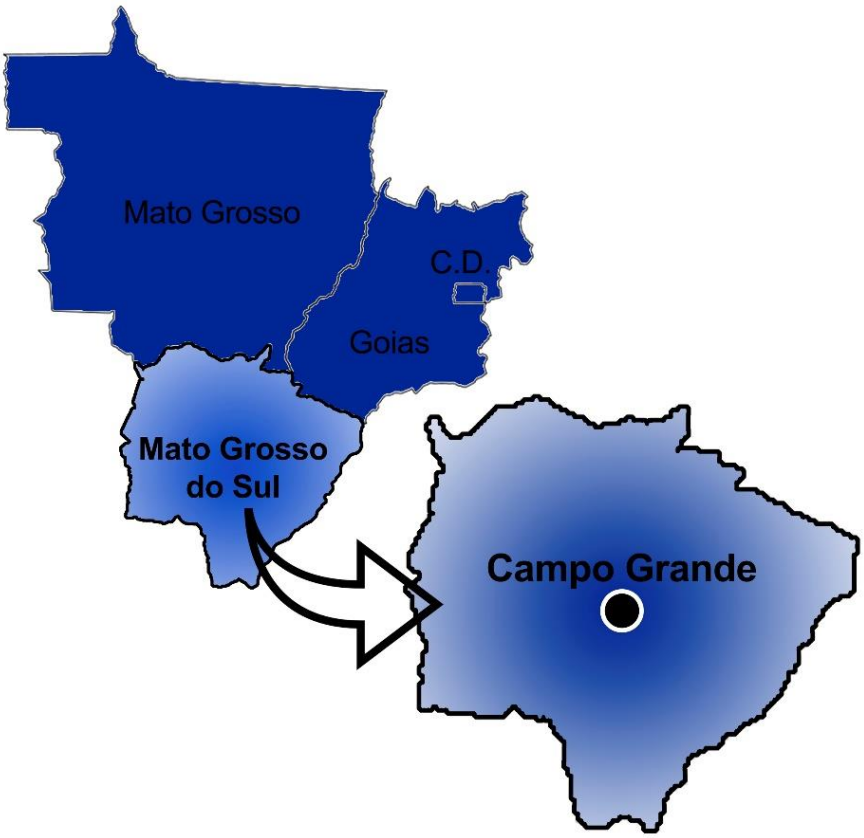

Figure 1-3 - Map of Centre-West and Mato Grosso do Sul.
Source: Adapted from (Brazilian Institute of Geography and Statistics 2017).

1.2 Housing Deficit

Despite its developing economy, Brazil faces issues with housing deficit, which is currently one of the main social concerns in the country. According to the João Pinheiro Foundation (2016), the concept of housing deficit is defined by a lack of available homes, which includes those houses that are uninhabitable due to their inadequate construction. Addressing the housing deficit requires an increase in the stock of homes for low-income people who cannot afford to rent a house from private agencies, and residents who live in rented houses with high density of people. Non-residential properties that are inhabited are also included.

There are around 5.4 million families without an appropriate place to live in the urban areas of Brazil. This problem is mostly concentrated in the South-East region, with a shortage of 1.9 million homes. The region with the least number of families without an appropriate residence is the Centre-West region, with an approximate shortage of 450,000 homes, and the state with the lowest housing deficit in this region is Mato Grosso do Sul, with a shortage of less than 80,000 (Neto et al. 2015).

The housing deficit is more pronounced in families with a combined household income less than or equal to three times the statutory national minimum wage, as they constitute 70% of the total number of people without an appropriate place to live (Neto et al. 2015). For this reason, the Federal Government has developed social housing programmes, particularly aimed at providing housing for families in this category (Caixa Economica Federal 2014).

1.3 Social Housing Programmes

Social housing in Brazil is funded, but not developed, by the government; its development is managed by private companies. The funding for social housing development can be provided either by the Federal, State, or Local Government. However, in the past seven years, most of the social housing developments have been entirely funded by the Federal government. Caixa Econômica Federal, a national bank owned by the Federal government, allocates finance for social housing development to construction companies. The main social housing scheme funded by Caixa is the My House My Life programme. This has been the main source of funding for social housing development in the various areas of the country. In the past five years, all the social housing estates in Campo Grande have been developed through this programme (Campo Grande 2015). In order for the proposal

developers to apply for the My House My Life programme, and to receive funding from the sponsor, the construction companies must meet minimum standards set by them, which establishes specifications such as the size of the houses and the materials used.

The Federal government sets a target for construction of social housing for each state based on its housing deficit, and Caixa allocates funding for social housing development based on those targets. The Federal Government sets targets for social housing construction for each state; Mato Grosso do Sul has come closest to achieving that target (Lopes 2011).

As the capital and the largest city in the State (Brazilian Institute of Geography and Statistics 2017), Campo Grande is the focus of social housing development in the State, and therefore the optimum place for this investigation. Although the social housing developments have been successful in decreasing the number of slums in the capital of Mato Grosso do Sul, they still do not seem to be satisfactory for the residents. It is possible to observe informal alterations to the houses, which could indicate that the original design does not meet the needs (see Figure 1-4 and Figure 1-5).

Figure 1-4 - Celina Jallad, social housing estate in Campo Grande, just after build completion.

Source: G1 Noticias (2015), available at: http://g1.globo.com/mato-grosso-do-sul/noticia/2015/08/ministro-entrega-moradias-do-minha-casa-minha-vida-na-capital-de-ms.html

Figure 1-5 - Celina Jallad, social housing estate in Campo Grande, approximately one month after completion.
Source: Author

In terms of community development, houses should be located in an area that provides buildings and facilities for activities related to education, health, leisure, etc (Abiko 1995). Due to increased land prices in the central areas, most of the social housing in Campo Grande has been built far from the centre and without the essential services and facilities. Maricato (2003) states that due to this urban segregation from the centre, people who live in the peripheral areas of towns may not have access to urban services and infrastructure. This makes it more difficult for those people to have opportunities of better jobs, better studies, and having access to leisure.

Although Caixa presents rules for the construction of social housing that they fund, they do not establish specific guidelines regarding the design of private and public space surrounding the houses. The local authority also lacks specific regulations that ensure social housing is appropriately constructed.

Besides peripheral locations, an observation of the images of social housing estates in Campo Grande, just after build completion (see Figure 1-6), shows that these developments are composed only of houses, and with a lack of individual identity.

Figure 1-6 - Parque Tarcila do Amaral, social housing development in Campo Grande, just after build completion.
Source: City Council of Campo Grande (2014).

1.4 Issues to be Addressed

The construction of social housing in the city has grown rapidly on the past few years – over 6,000 residences have been built through various social housing programmes in Campo Grande between 2014 and 2015. However, there has not been an evaluation of how the residents are responding to their new houses. Without specific local regulations regarding the construction of social housing, the new developments have been constructed based only on the national standards required by Caixa. It is crucial to investigate the needs of the residents of social housing in the city, and evaluate their response to their houses. Based on this investigation, it will be possible to develop guidelines that can be incorporated as local regulations, to ensure the development of social housing is based on the needs and perspectives of the residents.

1.5 Aim and Objectives

This research will propose guidelines for the development of social housing in the city of Campo Grande, which will be based in a theoretical framework combined with an analysis of the residents' needs. For this aim to be achieved, five objectives will be explored.

1.5.1 Objectives

- To investigate the history of the development of housing for the lower income people in Brazil, and to critically analyse how national social housing programmes have influenced the current type of social housing development;
- To evaluate the development of the city of Campo Grande and the current local social housing policies, and to examine the impact of these policies on the production of social housing in the city;
- To examine the concepts of community and home, in order to develop a theoretical framework, which can be applied to the context of this research;
- To discover the views of social housing residents in Campo Grande in relation to their homes, and of the local authority; through a data collection in the social housing developments, as well as with the local authority departments managing the production of social housing;
- To enhance the theoretical framework and develop guidelines for the improvement of social housing development in the city.

1.6 Current State of Knowledge

There is a vast diversity of literature focused on the term community. The form in which this subject is discussed varies from one discipline to another (Crow & Graham 1994). The interpretations of the term community can vary even within single disciplines such as sociology. Indeed, scholars approaching this subject appear to agree only on one aspect – the definition for the term community can present various interpretations (e.g. Bell & Newby 1971; Brint 2001; Crow & Graham 1994; Hillery 1955; König 1968; Lee & Newby 1983; MacQueen et al. 2001).

Amongst the paradoxes in the definition of community, there are studies which claim that communities are necessarily based on locality (e.g. Sussman 1959; Warren 1971), while others believe it can be formed by a group of people (e.g. Brint 2001; Crow & Graham 1994; König 1968; Gusfield 1975; Riger & Lavrakas 1981; Lee & Newby 1983; Wellman 1979). Besides the dichotomy between locality and people, there are also scholars who affirm that communities are necessarily small (e.g. Tonnies 1887; Sussman 1959; Kaufman 1959), while others state that they can be at either small or large scales (e.g. König 1968; Durkheim 1897). Common bonds in communities are also a matter of discussion, as some sociologists believe that people in a community present common bonds (e.g. Tonnies 1887), and others

claim that communities may lack common bonds amongst their people (e.g. Brint 2001; Durkheim 1897; Willmott 1986).

The dichotomies of definition for the term community bring the necessity for a conceptualisation of the term that can be applied to the context of this research, i.e. residential communities. Scholars also point to the presence of social interaction between members of a community, and their sentiment of community (e.g. Downs, 1981; Durkheim, 1897; Fischer, 1977; Gusfield, 1975; Kaufman, 1959; Sussman, 1959; Tonnies, 1887; Wellman, 1979; Willmott, 1986). Some studies point out that the level of sentiment of community can be closely related to the level of social interaction of its people. There is a range of social variables that can influence the level of social interaction in a community, such as length of residence, age, income, gender, mobility, and ownership (König 1968; Ellen & Turner 1997; Atkinson & Kintrea 2001; Riger & Lavrakas 1981; Shulman 1975; Keller 1968; Hunter 1975; Fischer 1977; Tonnies 1887; Wellman 1979; Durkheim 1893; Kearns & Parkinson 2001).

Once it is known that there are social variables that influence the degree of social interaction and, therefore, the sentiment of community, scholars suggest that an intervention of these social variables could intentionally create sentiment of community for the people (Bauman 1990; König 1968; Suttles 1972). This research will investigate what these interventions are, and how they could be applied to residential communities.

Previous studies about home point to the concept of home as being a space for which people have emotional attachments (Oswald & Wahl 2005; Sixsmith 1986). The current literature shows an importance in understanding the difference between house, which is a space, and home, which is a place. For that understanding to be achieved, studies on the definition of space and place should be carried out. Altman & Low (1992), Casey, (1997), Norberg-Schulz (1979), Rapoport (1977), Relph (1976), Trancik (1986), and Tuan (1977) are some of the authors who approach this subject.

More than just understanding the definitions and concepts, it is fundamental for this research to investigate the strategies based on place (Gans 1968; Gustafson 2001), and space (Beatley 2004; Giddens 1991; Meyrowitz 1985) to develop community. Studies of community development based on self-help will also be examined. Turner

(1976) is one of the pioneers of the concept of self-help. Authors such as Harris (2003) and Choguill et al (1993) also discuss this theme.

In relation to the theme of self-help in social housing estates developed through the My House My Life programme in Campo Grande, there is currently no research or academic literature in that field. Therefore, this research will bring a pioneering study to that subject.

1.7 Summary of Research Methodology

1.7.1 Theoretical Framework

The first stage of this research will be a literature review of social housing issues in Brazil, which covers the whole process from the beginning of housing provision for the lower income people, to the current social housing programmes and their characteristics. A literature search will be carried out on the development of the city of Campo Grande, including the policies and programmes adopted by the local authorities in regard to social housing. This stage will present the investigations on community and home, which will generate the theoretical framework for this research.

1.7.2 Data Collection

The data collection will be conducted through governmental and local documents, and at the studied city. It will adopt mixed research methods, both quantitative and qualitative. The data collection will be developed in three stages, which are:

Documentation

The first stage of the data collection will investigate and examine the policies of current social housing programmes, including its design requirements, and the city council regulations related to social housing and urban development. It will be essential in order to conduct the second stage of data collection, which will be undertaken in the city of study.

Questionnaires

The second part of the data collection will be carried out in six social housing estates in Campo Grande, funded by My House My Life programme. The questionnaires will be distributed to 464 residents of the housing estates, and the results will offer quantitative data for the research. All the questionnaires will be carried out by the researcher and assistants, to avoid misunderstandings and lack of responses.

Interviews and Observation

The third stage of the data collection will use interviews and observation in order to collect qualitative data. The interviews will engage social housing residents and local authority representatives. The residents selected to be interviewed will be based on the questionnaire responses. The local authority interviewees will be heads of the different departments related to social housing and urban development in the local authority.

The observation will be a visual examination of the social housing estates. It will use photographs to record how those developments have changed over the years, and how the residents have altered their homes.

1.7.3 Data Analysis

Once the results from the data collection are identified, they will be critically analysed. The analysis will enhance the theoretical framework, and will be the basis for the development of the guidelines that will form the proposition of the thesis.

1.8 Structure of the Thesis

The thesis contains seven chapters (see Figure 1-7) which are summarised below:

Chapter 1: Introduction

This chapter presents a summary of the background for the study and the issues to be addressed. It also establishes the aims and objectives, outlines the methodology, and how the thesis will be structured.

Chapter 2: Research Background

Through a literature review, this chapter will examine in detail the background of the research. It will be divided into two parts. The first will introduce the subject of housing in Brazil from the pre-colonial period through to the present day. It will also examine the social housing programmes developed in the country over the past fifty years. The second part will investigate the development of Campo Grande and will present the current situation and the issues with social housing development in the city.

Chapter 3: Theoretical Framework

This chapter will examine the principles of home and community, and it will investigate types of home and community development. At the end of this chapter, a theoretical framework will be proposed.

Chapter 4: Methodology

This chapter will carry out an in-depth study on the different strategies and methods of research, and it will select the most suitable methodology to be applied to the data collection in this study. It will present the type and size of sampling for the data collection, and criteria for selection, setting out all the necessary information for the development of data collection in the city.

Chapter 5: Data Collection: Results and Analysis

In this chapter, the data collection and data analysis will be presented. The data pertaining to the residents will be presented first, with results and analysis. It will then present the interviews with the local authorities. The chapter will be completed with a section which relates the findings of the data collection and analysis to the theoretical framework, and will raise the issues to be addressed within the guidelines.

Chapter 6: Proposed Guidelines

This chapter will bring an original contribution to this work. With the literature review, the theoretical framework, and the data collection, the guidelines for the development of social housing will be developed and presented in this chapter.

Chapter 7: Conclusion

The final chapter of the thesis will present a summary of findings and original contribution to knowledge. This chapter will also propose five possibilities for further research.


CHAPTER 1: Introduction
Current Situation
Issues to be Addressed
Aims and Objectives
Research Methodology
Structure of the thesis
CHAPTER 2: Research Background
The Development of Housing for the Lower Income People in Brazil
The Context of the Studied Area: The City of Campo Grande, Brazil
Summary
Conclusion
CHAPTER 3 Theoretical Framework
Principles of Community
Principles of Home
Home and Community Development
Conclusion
CHAPTER 4: Methodology
Types of Research Philosophy
Types of Research Approach
Strategy for the Research
Methods for the Research

Cont.

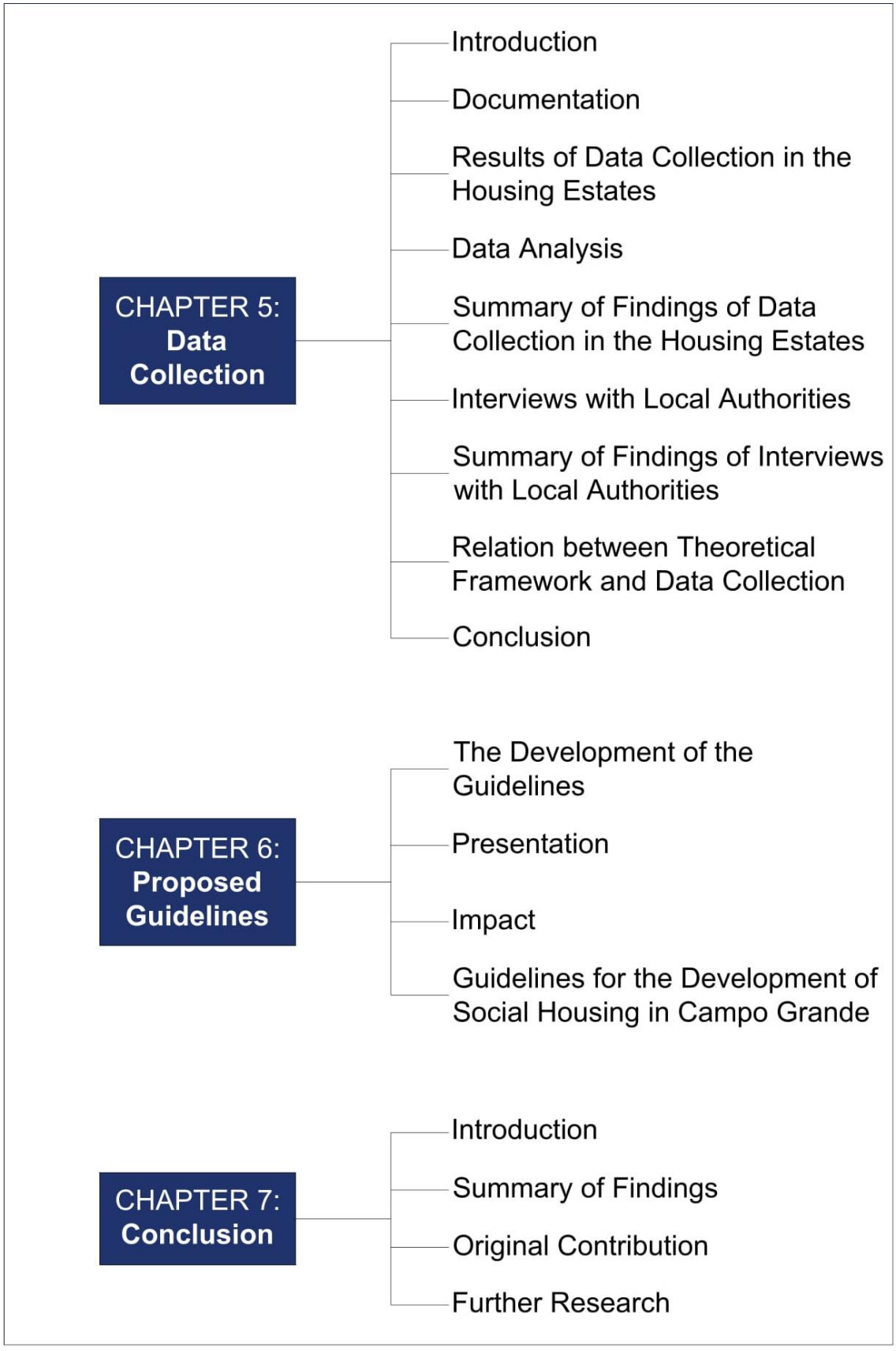

Figure 1-7 - Diagram with chapters and contents of the thesis.

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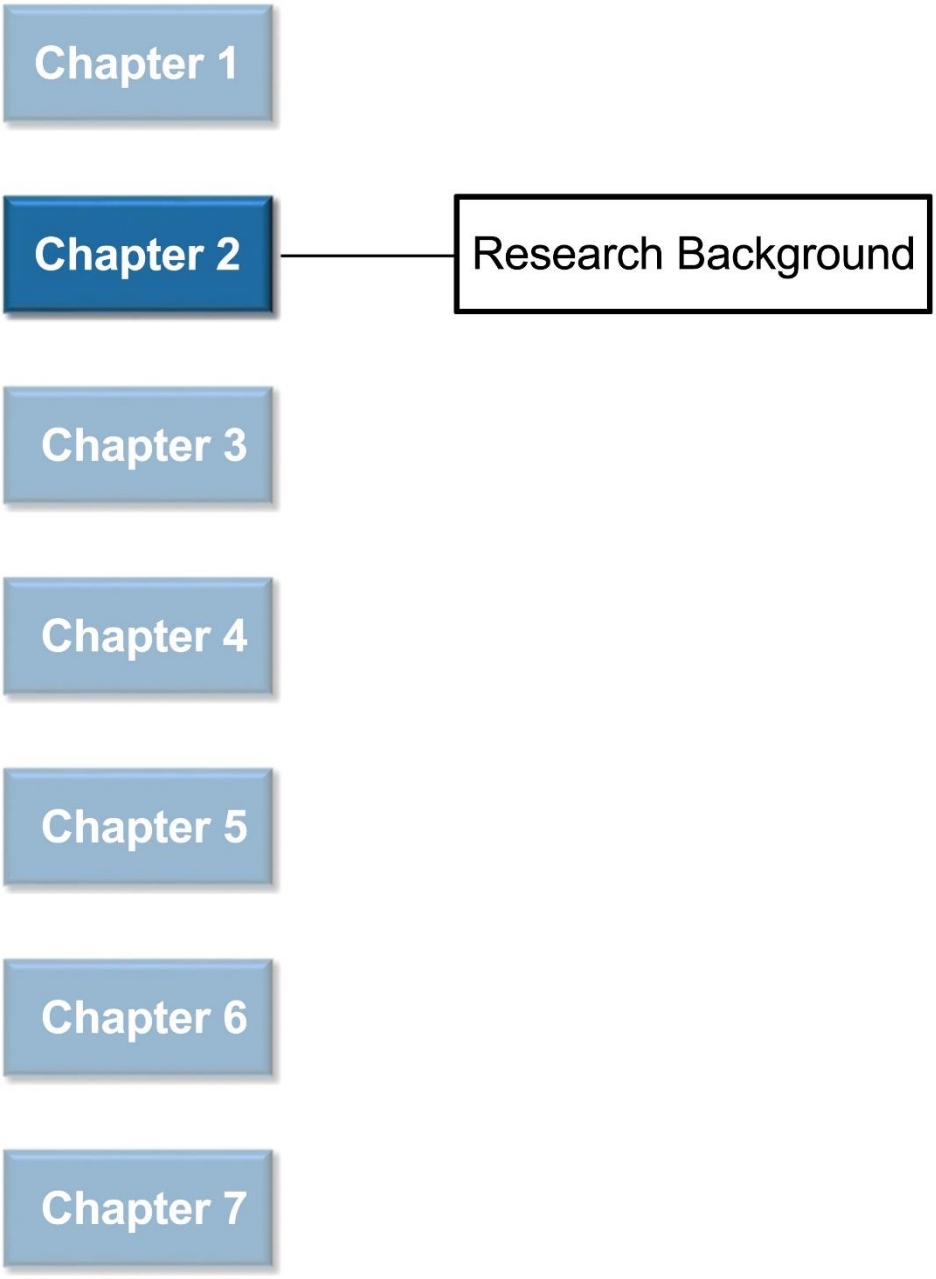

Chapter 1
Chapter 2
Research Background
Chapter 3
Chapter 4
Chapter 5
Chapter 6
Chapter 7

Chapter 2: Research Background

This chapter aims to establish the primary structures for the research. It investigates the main historical background behind the current problems being studied. It then furnishes knowledge not only about the problems but also about their origins and how they have been dealt with. This chapter provides an overall picture in the context of the scenario of this study. It is divided into two sections: the first discusses the development of housing for the lower income people in Brazil, from the pre-colonial period to the current day. The second approaches the development of the city of Campo Grande, from its origin to how it is currently structured. It also presents the urban plans and policies for the city and how it has affected the housing for the low-income people. At last, it shows where historically the city and the national social housing programmes converge and how it has influenced the development of social housing in the city.

2.1 The Development of Housing for the Lower Income People in Brazil

2.1.1 Housing in the Brazilian Prehistory

Before 1500, when the Portuguese traders sailing to India to negotiate a spice route landed in Brazil, it was inhabited by native people, who also came to be known as Indians, as the Portuguese had believed they had arrived in India. There is little data about those people who populated the country before the colonisation. Levy (1974) and Melatti (2007), both citing Steward and Faron (1959) and Steward (1947, 1955), speculate the population could have been between 1 and 3 million inhabitants, while (Melatti (2007), cites other authors to present variable data on the number of inhabitants. Denavan (1942), for instance, affirms that Brazil could have had over 4 million inhabitants. Those statements make it clear how inaccurate information about the pre-colonial Brazil remains. Not only data about the exact number of the population, but also literature recording the culture, behaviour, and architecture of that period are imprecise. Nevertheless, there are still tribes in Brazil that maintain their traditions, which are believed to have changed little over the years, and for that reason, they can be used in studies to understand the ancient Brazilian natives.

The Brazilian natives lived in tribes, with little cultural distinction between each other. The tribes lived in *aldeias* (see Figure 2-1), which are villages composed of their dwellings. The natives were nomadic, so they used to migrate constantly. The

location of the *aldeias* was usually chosen by a tribal elder. They were located far from the coast, and the Portuguese only saw the first *aldeia* after an entire day of walking. The first *aldeia* found was approximately 7km inland, as the tribes believed it was more secure from invasions. It was also nearer areas with rich and abundant natural resources, such as lakes or rivers, on which they depended for survival (Elias 2000).

Figure 2-1 - Aldeia of a native community in Brazil.
Source: Available at: http://fotos.estadao.com.br/retratos-do-xingu-vista-aerea-da-aldeia-ipatse-no-parque-indigena-do-xingu,galeria,49,1357,,,,0.htm (Accessed: 14th April 2014).

The layout of *aldeias* varied depending on the tribe, but it usually had elliptical, circular or horseshoe shapes, with a shelter for social activities, such as religious ceremonies, in the centre and houses on the periphery. Elias (2000) states that the reason for the use of these shapes is believed to be related to the tribe's concept of equality, as none of the houses would have better location than the others, and each one of them could be equally seen from all the others. This shape could also provide more interaction between the inhabitants, as the social activities used to happen in the centre of the *aldeias*.

Each of the houses contained a single undivided volume and was inhabited by a single family. Usually the only furniture were hammocks, in which to sleep. The houses were built with wood and covered with straw (see Figure 2-2).

Figure 2-2 - Indigenous house in Brazil.
Source: Novaes (1983).

As Brazil is a continent-sized country, with diversity of ecosystems, and the tribes were located in distinct regions, it contributed to a variety of architectural solutions for the dwellings, and resulted on different shapes of houses for each tribe (Novaes 1983), such as the ones presented on the Figure 2-3.

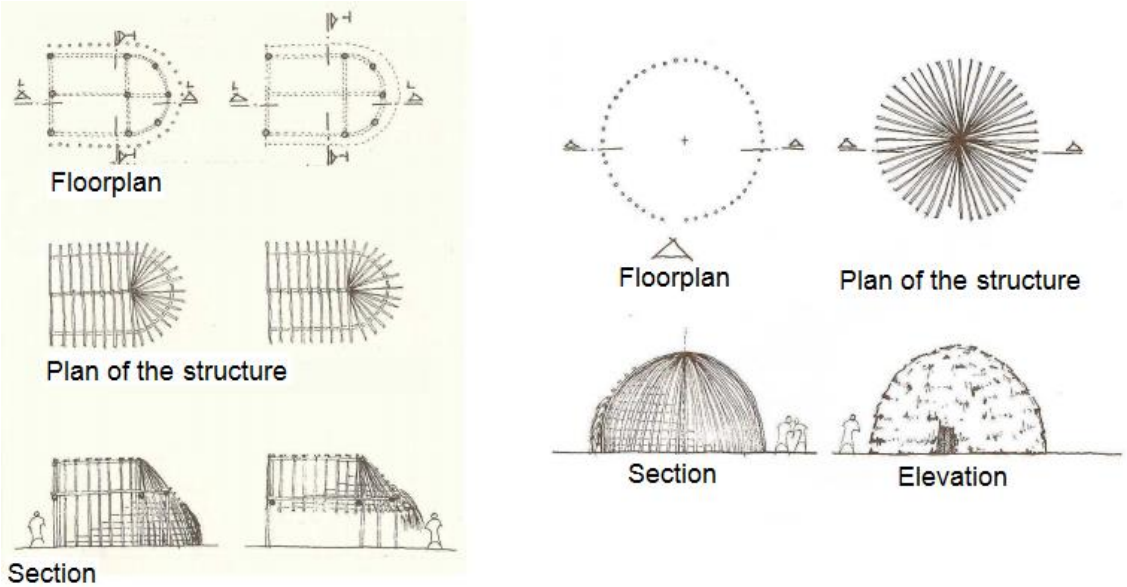


Figure 2-3 - Outline of semi-elliptical native house on the left and circular on the right, built by tribes of different regions in the country.
Source: Adapted from Novaes (1983).

There were tribes that had specific people to plan the houses, such as the ones that still exist in the Xingú National Park. The Xingú is an area created to preserve and protect the environment and indigenous tribes in that region. Those planners developed the houses based on the anthropology (see Figure 2-4) (Novaes 1983).

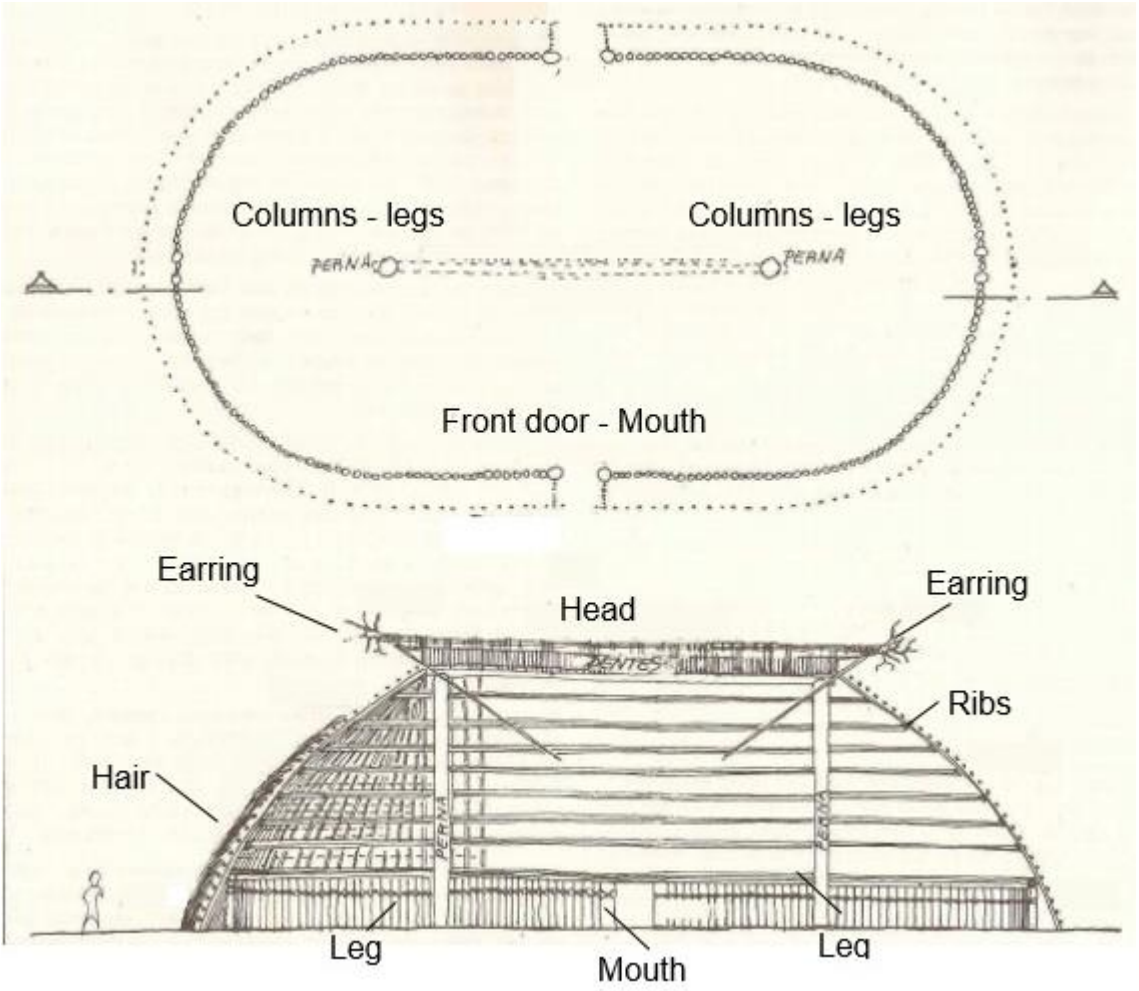


Figure 2-4 - Outline of a Xingú house, comparing their design with a human body.
Source: Adapted from Novaes (1983).

The Portuguese arrived in Brazil in 1500. Since their arrival, they tried to impose their culture, such as religion, language, and dwelling to the natives. They destroyed the *aldeias*, and built new dwellings to house the natives, where they would teach their religion and behaviour to the natives, and have them as slave labourers. These new houses presented a hierarchical distribution, between the natives and the settlers. It contrasted with the indigenous equalitarian communities (Maricato 1997). Since the arrival of the Portuguese, thousands of natives were killed, and others became slaves, until the importation of African slaves to the country, which also happened in the sixteenth-century, in order to replace the natives as slave labour. It caused the decrease of the indigenous population in Brazil. It is estimated by the

Brazilian Institute of Geography and Statistics (2000) to have been around 2.5 million inhabitants in 1500, approximately 300,000 remains.

2.1.2 The Development of Housing for the Lower Income People in the Colonial Period – 1500-1822

The Brazilian architecture and urban planning during the colonial period, between the years 1500 and 1822, was based on Portuguese architecture. The colonial cities were supposed to follow rules established by Royal Letters, which were papers imposed by the king of Portugal to the colonial cities. These Letters included guidelines for the development of buildings and urban design. This resulted in skylines of the streets of towns and cities with a uniform pattern, which did not present pavements and had one and two storey houses built up to the edge of the plots (see Figure 2-5) (Reis Filho 2000).

Figure 2-5 - Colonial architecture in Brazil in the 17th century.
Source: Available at https://uk.pinterest.com/pin/437482551278807592/ (Accessed: 08th February 2016).

Amongst the aspects considered by the Royal Letters in relation to urbanism, there was the selection of the site where the cities would be developed, their urban design, and the size of their plots. The site should be located in areas considered safe from invasion, such as on the top of the hills, like an acropolis, and surrounded by walls, such as the medieval cities. When the cities grew beyond these walls, they could

reach the coast and be geographically divided in “upper and lower cities,” such as in Salvador, the first Brazilian capital (see Figure 2-6) (Oliveira 2010).

Figure 2-6 - Lower and upper city in Salvador, Brazil.
Source: Available at: http://www.klickeducacao.com.br/global/msg/1,5893,POR-15-S,00.html?pgvoltar=http://www.klickeducacao.com.br/enciclo/encicloverb/0,5977,POR-107,00.html (Accessed: 04th May 2014).

The regulations about urban design set out the width and shape of the streets along with the location of the parks and public buildings. Every colonial city had a city hall, a church, and a park square. The cities presented grid systems (see Figure 2-7), and a standard width for all the streets, for aesthetic purposes (Oliveira 2010).

The plots were narrow and deep, but it had variable sizes. Their width was usually between 5 and 8 meters, and the depth was always greater than the width. This allowed the houses to have backyards (see Figure 2-8) (Vautier 1975). According to Santos (2001), the backyards were important as people could use them for plantations to help to supply their families and for leisure.

Figure 2-7 - Map of the city of Salvador in the colonial period, Brazil.

Source: Available at: http://www.vitruvius.com.br/revistas/read/arquitextos/08.093/166 (Accessed: 04th May 2014).

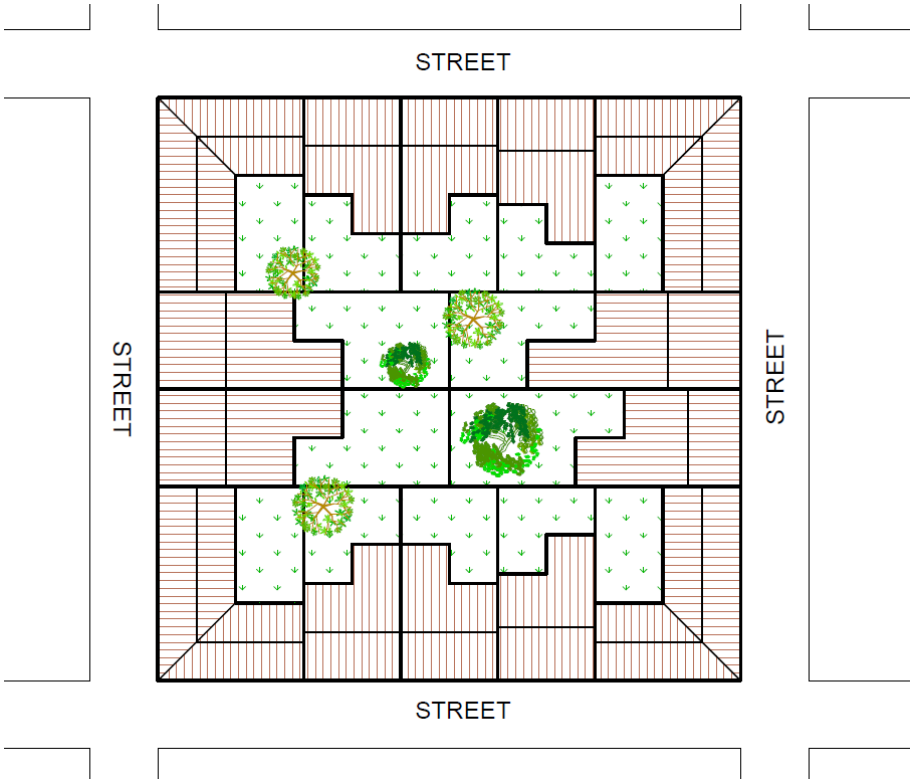


Figure 2-8 - Plan of a block of a colonial city.

Source: Author

The houses were normally developed by their dwellers on their own plots, constructed by slave labour. They had to be built under the rules for the construction

of buildings. These rules included considerations such as window size and quantity, height of the floors, and alignment with adjoining buildings. It helped in leading to a uniform pattern in the cities. The houses were built up to the front and side boundaries of their plots. These rules had mainly an aesthetic function to provide the Brazilian cities with a Portuguese appearance. Adjoining houses were expected to be built to the same height; with the party wall providing structural stability and protection from rain. They had duo-pitched roofs to discharge the rainwater to the streets and to the back of the plots, avoiding the need for gutters (see Figure 2-9). Corner houses were constructed with hipped roofs to provide a uniform facade to both elevations (see Figure 2-10 and Figure 2-11) (Reis Filho 2000).

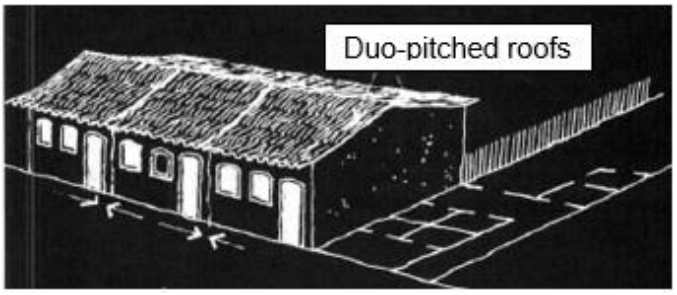


Figure 2-9 - Facades of houses in the colonial period.
Source: Adapted from Reis Filho (2000).

Figure 2-10 - Corner houses in colonial style in Brazil.
Source: Available at: http://www.paratyonline.com/jornal/2014/10/arquitetura-colonial-de-paraty/ (Accessed: 08th February 2016).

Figure 2-11 - Corner houses in colonial style in Brazil.
Source: Available at: http://www.paratyonline.com/jornal/2014/10/arquitetura-colonial-de-paraty/ (Accessed: 08th February 2016).

Not only did the facades follow a standard form, but also the plans. The differences in the single-storey houses, which were the ones occupied by the families with lower income, were basically the size and number of rooms. The smaller houses, known as “house of one door and one window,” referring to its facade, only had circulation through the rooms. “Half houses” had a lateral circulation and “full houses” had its circulation in the middle, which connected the entrance to the back door (see Figure 2-12). The single-storey houses had a dirt floor, and the walls of most houses were mainly constructed of adobe or rammed earth or wattle and daub, while the roofs were covered with ceramic tiles (Reis Filho 2000).

In 1807, when Napoleon invaded Portugal, the Portuguese Royal family escaped to Brazil and settled in the city of Rio de Janeiro, which led this city to become the capital of the United Kingdom of Portugal, Brazil and Algarves in 1808. The King later returned to Portugal in 1821 and left his Regent son in Brazil. With the King returning to Portugal and the revocation of the status as capital of the Kingdom, the fear of once again becoming a subordinate colony of Portugal’s Empire arose in Brazil, and led the Regent to declare independence to Brazil in 1822 (Baer 2003).

Although Brazil achieved its independence in the early nineteenth-century, the colonial style remained common for the following 70 years. However, with the abolition of slavery in 1888 (Needell 2010), and the immigration of new European people in the early twentieth-century, substantial changes occurred in the development of its dwellings.

Figure 2-12 - Plans and elevations of colonial houses.

Source: Adapted from Barreto (1940).

2.1.3 The Development of Housing for the Lower Income People in the First Republic (1889-1930)

The period known as First Brazilian Republic, or *República Velha*, which means Old Republic in Portuguese, is the period of Brazilian history from 1889, with the Proclamation of the Republic, to 1930. In the first years of the First Republic, Brazil saw a great expansion in its coffee industry, mainly concentrated in the states of São Paulo, Rio de Janeiro, and Minas Gerais, the Southeast region, which demanded more labour in the agricultural land (Patarra 2003). By that time, the slave labour was becoming gradually more difficult to use, with the pressure from England for the abolition of slavery, especially due to a regulation created in 1845,

which allowed the English military army to attack Brazilian ships that were trading slaves (Silva 2010). Besides that, the Brazilian population could not meet the increasing demand for labour; this situation led the country to adopt a policy of encouraging the immigration of foreigners as a solution for the lack of labour, which by that time had already happened in countries such as the United States (Levy 1974). During that same period, the increase in birth rate and decrease in mortality rate in Europe led to a growth of the population, for which some countries were not economically prepared. This led to the emigration of Europeans to the New World countries – former European colonies, which offered opportunities for jobs. Therefore, it was the Europeans who migrated to Brazil to supply the demands for labour during that period.

Despite being produced in Brazil since the sixteenth-century, coffee became the main product of the Brazilian exports during late nineteenth century. With the improvement in the quality of life for people in Europe and the United States, caused mainly by the development of their economies due to the Industrial Revolution, countries started to import larger quantities of coffee from Brazil. The amount of coffee exported in the years between 1881-90 was over fifteen times larger than in the years between 1821-1830, and in 1924 it represented 75% of the total produce exported from Brazil, contrasting with the 19% in 1820. With the growth of the economy caused by the coffee industry, Brazil was able to afford the development of light industrialisation, producing mainly fabric, shoes, and food; to supply the demands of the domestic market (Baer 2003). This early industrialisation contributed to the growth of the cities, whereupon the new immigrants and former slaves were seeking jobs. This resulted in an increase in demand for housing in the cities (Maricato 1997). Nevertheless, it was not until 1930 that the government intervened in housing issues (GAP 1985), as in that period, a policy of liberalism dominated in the country. Brazil adopted the North American model for economic liberalism, in which the governmental interventions in the country are limited, and encourages a free market system, under its Constitution of 1891, which was based on the Constitution of the United States of America (Trindade 2004).

It was only the private construction companies that provided housing for the new citizens. During that period, there were no mortgage facilities, which led most people in the cities living in rented residences. According to Bonduki (1994) for instance 90% of the inhabitants in Sao Paulo were tenants in the places where they lived. The dwellings developed by those companies for the lower income population were

initially built in the central areas of the cities, where their dwellers could live close to the factories, and have more job opportunities. Bonduki (1994) states that the main concerns of the developers were to economise on land and on construction materials, through the development of multifamily housing, that could house as many people as possible, and optimise the use of land, by building on the full footprint of the plot. It was in that context that the *cortiços* (see Figure 2-13 and Figure 2-14) arose in the main cities, especially in Rio de Janeiro and São Paulo.

Figure 2-13 - Cortiços in Brazil.

Source: Available at: http://vitruvius.com.br/revistas/read/arquitextos/09.097/136 (Accessed: 24th June 2017)

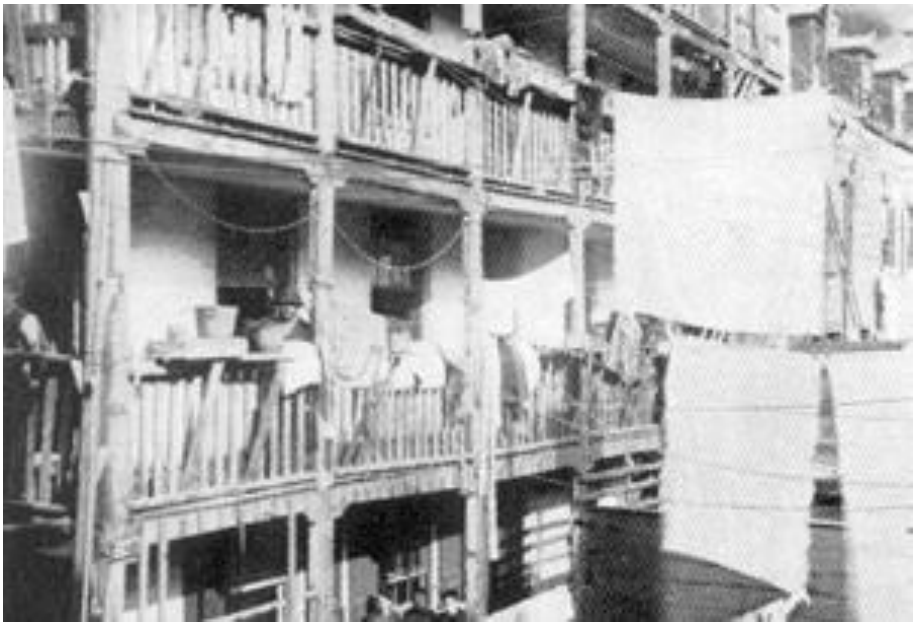


Figure 2-14 - Cortiços in Brazil.

Source: Available at: http://vitruvius.com.br/revistas/read/arquitextos/09.097/136 (Accessed: 24th June 2017)

The *cortiço* became a common type of dwelling for lower income people between late nineteenth and early twentieth. São Paulo, for instance, had one third of its population living in *cortiços* in 1900 (Bonduki 1994). There were several types of *cortiço*, such as the ones with a courtyard; the ones built in the backyard of warehouses, restaurants, or bars; and the ones with retail and residential areas in the same building. People who owned pieces of land or houses, warehouses, bars, or restaurant with a backyard which was not used, rented, or sold these spaces to constructors for them to develop *cortiços* (Vaz 1994). The features the *cortiços* had in common were usually being multifamily residences, located mainly in central areas of the cities, whereupon each dwelling was composed of only one multifunction room, inhabited and rented by lower income people, suffering from overcrowding and poor sanitary conditions (Piccini 2004). One of the most common types was the one with a courtyard. Its layout usually contained balconies surrounding the courtyards, providing access to the dwellings (see Figure 2-15). Shared bathrooms were located on the balconies, while shared laundry could be located either on the balcony or in the courtyard.

Figure 2-15 - Plan of a cortiço with courtyard.
Source: Author.

With poor construction, the *cortiços* suffered with problems such as rainwater penetration and lack of natural ventilation, which led them to be considered unsanitary dwellings by the government (Piccini 2004). The *cortiços* were also considered dangerous and immoral for the cities, due to its high concentration of poverty, unemployment, high crime rates, epidemics, overcrowding, and lack of privacy. For those reasons, the government encouraged construction companies to

develop “hygienic” houses for lower income people, by creating regulations to allow them to demolish existing dwellings in the cities, which included the *cortiços* (Maricato 1997; Vaz 1994). However, a regulation established by the city council of São Paulo, stating that the *cortiços* were prohibited to be built in the city centre, makes it clear they were not concerned with the quality of life of the lower income people, but only with the central areas of the city, avoiding the problems brought from the *cortiços* to the central areas, such as the ones aforementioned (Blay 1985).This resulted in the migration of people to the periphery of the cities and in the formation of illegal settlements (Maricato 1997).

Besides the *cortiços*, another noteworthy typology of dwelling in that period was the *vilas operárias*, or working-class houses. They had two types: one was owned by private developers that rented the houses to low-income people, mainly factory workers, and the other was owned by the factories to provide houses for their workers. Both types had the same basic architectural features, and were built near the factories (Bonduki 1994). The necessity of having the workers living near the factories led initially to the construction of dormitories for those workers. The first examples were the ones built in the states of Bahia - in the Northeast of the country, and of Rio de Janeiro - in the Southeast, both in 1853; followed by the states of Alagoas - in the Northeast, Minas Gerais - in the Southeast, and of Rio Grande do Sul - in the South, in 1866. Nevertheless, it was in the last decade of the nineteenth-century that the working-class houses had started to be built. It is believed that this idea of building houses for the workers arose mainly because of the substantial number of foreigners working in the factories, who had demanded these provisions to remain in the country (Blay 1985). This explains why some of these developments were entirely inhabited by foreigners.

The concept of working-class housing arose in England, with the Industrial Revolution. During that period, many workers emerged in that country, and the cities underwent a rapid growth, which led to poorly constructed dwellings, where they were housed. This situation forced the demolition of the unsanitary houses all over England and led to the development of new settlements, which would have the factories as their core, as they were produced mainly for the workers. According to Benevolo (2003), these new developments presented a uniform pattern (see Figure 2-16 and Figure 2-17), as they were built under the regulations of the Public Health Act, 1875, and the developers aimed to use the limits of that regulation as much as

possible. The use of bricks, which primarily was used in the building of the factories, was also adopted in building the working-class housing.

Figure 2-16 - Housing developments built uniformly to use as much as possible the limits imposed by regulations of the Public Health Act, 1875, in England.
Source: Benevolo (2003).

Figure 2-17 - Housing developments built uniformly to use as much as possible the limits imposed by regulations of the Public Health Act, 1875, in England.
Source: Benevolo (2003).

In Brazil, the developers of the factories went to the most industrialised countries of that period to search for constructive and functional solutions for the developments

of their factories. As an example: the Maria Zélia factory, in São Paulo, was designed by an English firm from Bradford, in 1912; it followed the style found in the English factories of that period (Rodrigues 2011). English architectural features, such as the use of bricks in facades and terraced houses, were also influential in the Brazilian working-class houses (see Figure 2-18 and Figure 2-19) (Correia 2011).

Figure 2-18 – Vila Cerealina, working-class housing in Sao Paulo.
Source: Correia (2011).

Figure 2-19 - Vila Boyes, working-class housing in Sao Paulo.
Source: Available at: http://saudadesampa.nafoto.net/photo20100807063523.html (Accessed: 04th May 2014).

Known as Northern Industrial Emporium, the first working-class houses development in Brazil was built in Salvador, capital of Bahia, in 1892, and included 258 residences (see Figure 2-20 and Figure 2-21). Besides houses, that development also offered schools, health centres, public areas and other services for the community (Blay 1985).The necessity of having these facilities in the working-class housing developments is due to their location. These developments were located in the periphery of the cities, therefore without the services that were normally only found in the city centres. Bonduki (1994) states that as the services

and amenities, such as churches, schools, and retail, were owned and managed by the factories. Therefore, they could be means for the factories to control their workers even when they were not at work, and keep them in close proximity to the factories.

Figure 2-20 - Northern Industrial Emporium, the first Brazilian working-class housing, built in Salvador, Bahia, in 1892.
Source: Available at: http://blogs.ibahia.com/a/blogs/memoriasdabahia/2013/05/07/a-vila-operaria-de-luis-tarquinio/ (Accessed: 23th June 2017).

Figure 2-21 - Northern Industrial Emporium, the first Brazilian working-class housing, built in Salvador, Bahia, in 1892.
Source: Available at: http://blogs.ibahia.com/a/blogs/memoriasdabahia/2013/05/07/a-vila-operaria-de-luis-tarquinio/ (Accessed: 23th June 2017).

Working-class houses in Brazil were built in a way to utilise as much of the plot of land as possible, without setbacks, and in continuous terraces. It was done in order to economise on land and construction materials. Such as can be seen in the working-class houses built by the private developer Economizadora in 1910 (see

Figure 2-22 and Figure 2-23), and the ones built by the developer Regino de Aragão (see Figure 2-24), in 1911, both in São Paulo. This concern with the budget was more common in the developments owned by private developers, as they could make more profits from rent where the houses had a low cost of construction (Bonduki 1994).

Figure 2-22 - Working-class houses built by the private developer Economizadora, in 1910, in São Paulo.
Source: Bonduki (1994).

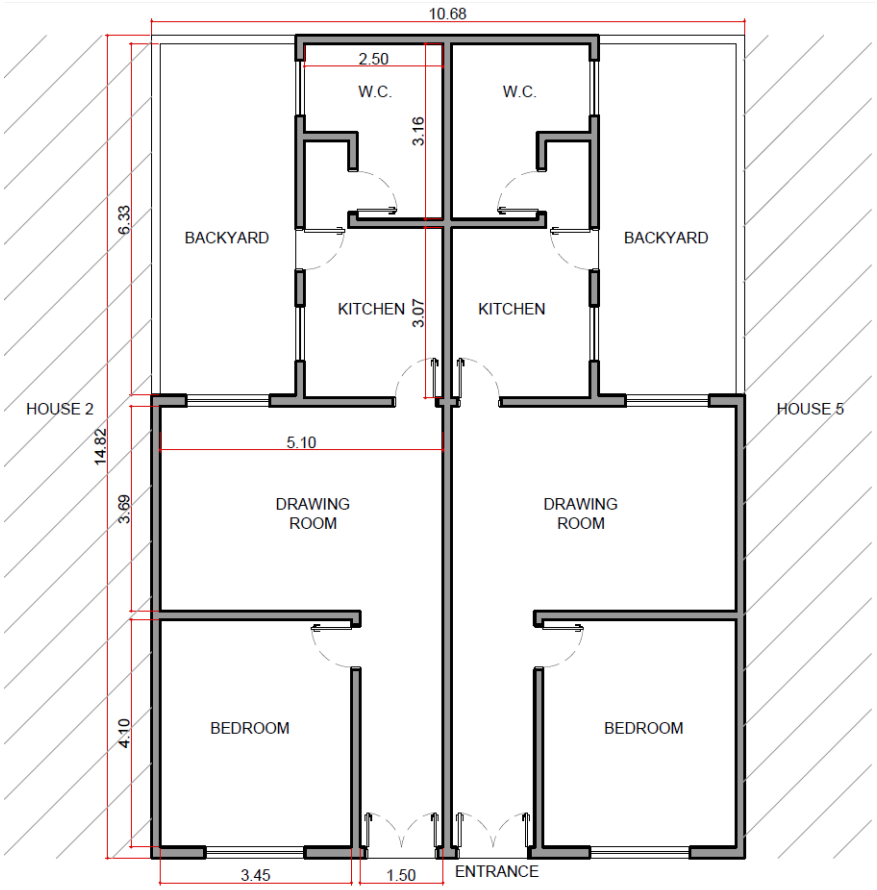


Figure 2-23 - Floor plan of working-class house built by the private developer Economizadora, in 1910, in São Paulo.

Source: Adapted from Bonduki (1994).

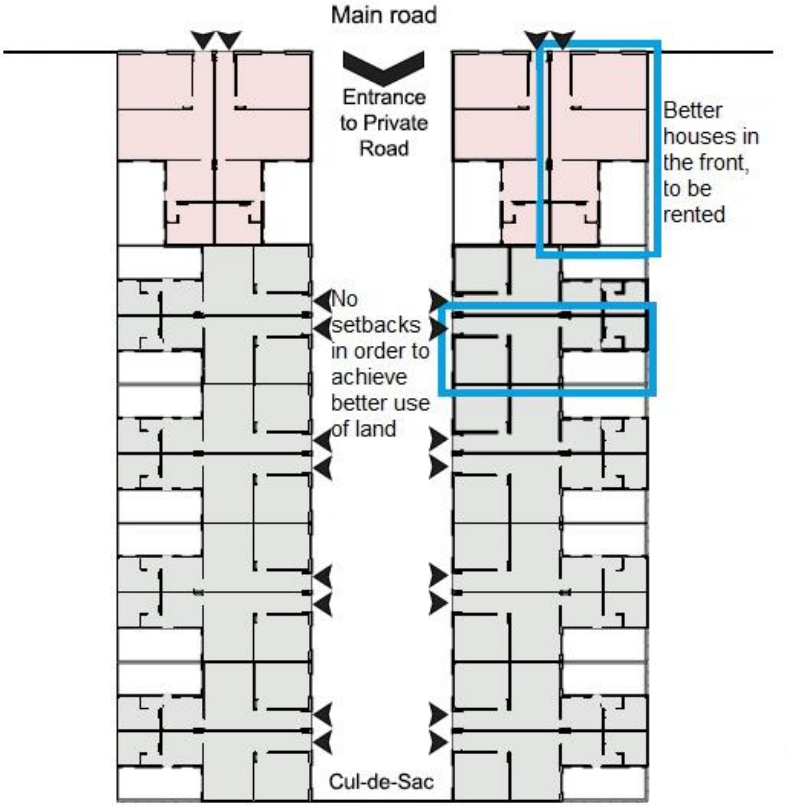


Figure 2-24 - Working-class houses development owned by a private developer in São Paulo.
Source: Adapted from Bonduki (1994).

In 1916, the owner of the Maria Zélia factory invited the French architect Pedarrieux to design a working-class housing development for the workers of that factory. Named Vila Maria Zélia, the working-class housing estate had 200 houses and it was, according to Benclowicz (1989), inspired in the Saltaire village, which was built between 1851 and 1872, in Bradford. Like Saltaire, schools, health centres, public areas and other services for the community were included alongside the houses. Both developments had streets with orthogonal layout (see Figure 2-25 and Figure 2-26).

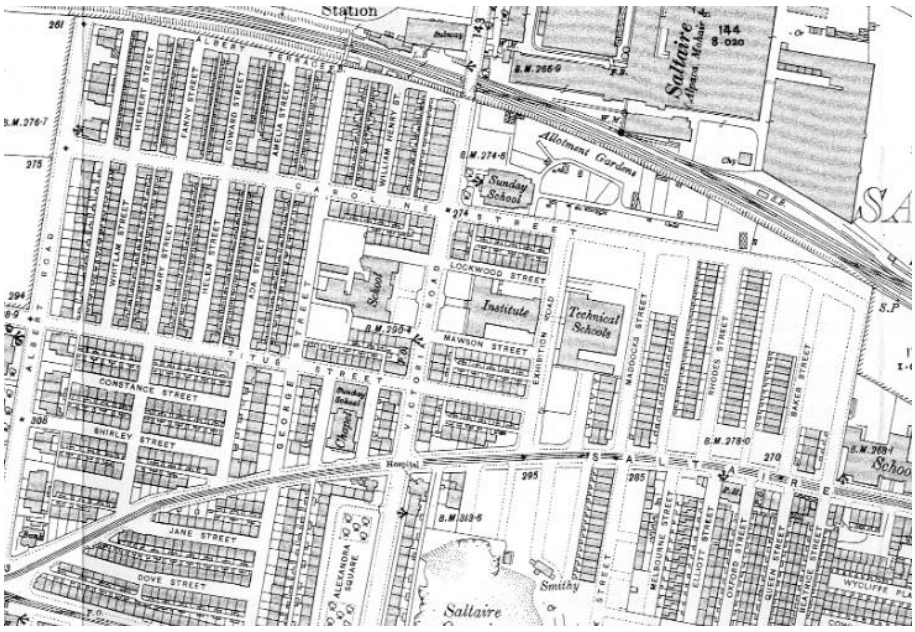


Figure 2-25 – Plan of the Saltaire village, in Bradford UK.
Source: Available at: http://www.ianaire.pwp.blueyonder.co.uk/late_19th_c.htm (Accessed: 04th May 2014).

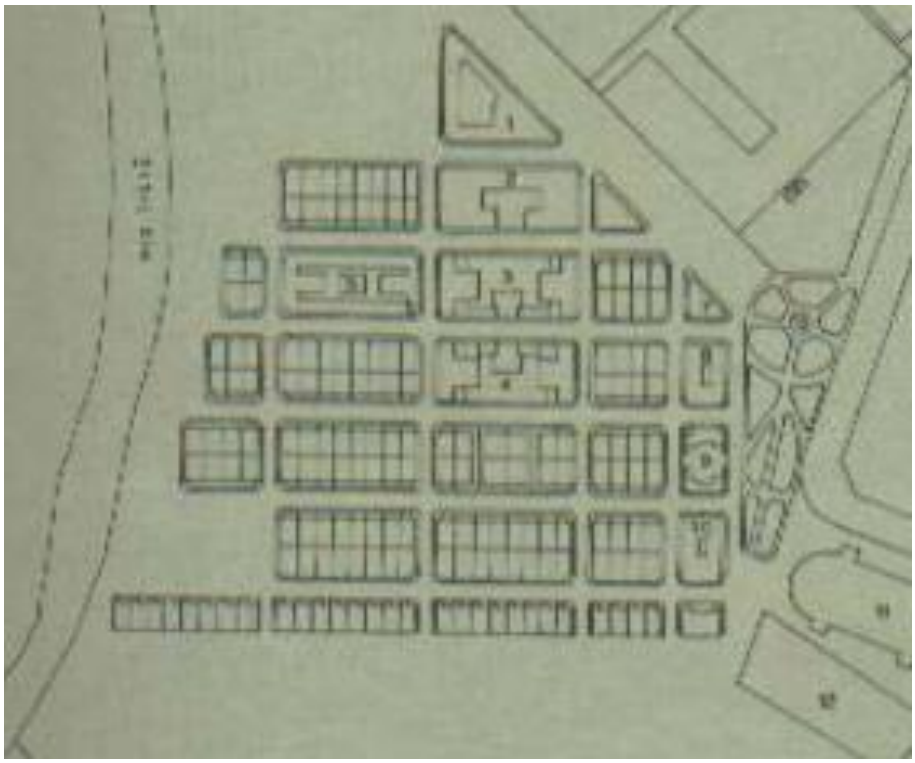


Figure 2-26 – Plan of the Vila Maria Zélia, in São Paulo.
Source: Benclowicz (1989)

Between the years 1890 and 1900, the population of the city of São Paulo increased from 64,000 to 240,000, due to the movement of people from other parts of the country and by the international immigration, and in 1920, it reached approximately 580,000 inhabitants. In the same year, São Paulo recorded 84,000 workers in 4,000 factories (Blay 1985). With a bigger number of factory workers, and with the working-

class housing responding to the hygienic requirements, they became attractive places to live for the workers in the city of São Paulo. In the following years, the construction of these dwellings began in all the main industrialised Brazilian cities. According to Bandeira Jr (1901), amongst the thirty five factories that existed in the hinterland of the state of São Paulo, before 1900, eight built houses for their workers.

Private developers also benefited financially in the development of these houses. As they received tax exemptions for their constructions meeting the requirements established by the government to provide better sanitary conditions, such as having a private bathroom in each house, and the minimum recommended number and size of windows. Thus, they became profitable investments for the private developers, and exceeded the number owned by the factories (Bonduki 1994). The working-class housing developments built by private developers did not present community services, as the concerns of their developers was mainly the profit. This explains why most of the working-class houses developed in that period did not follow the model proposed by Northern Industrial Emporium and Vila Maria Zélia, and were built without the community services that their dwellers would need.

Another notable development was the working-class housing of the Brasital factory, built in 1924, in the state of São Paulo. Known as *Quintalões*, which means “big backyards” in Portuguese, 244 houses were built in four squares (see Figure 2-27), located approximately 500m from the factory. They presented three distinct types of house, with 52m², 65m², and 105m². All the houses used bricks in the facades, following the type of facade on previous working-class houses. They had party walls, which were also common for this type of development during that period. However, the outstanding characteristic of that development was the courtyard to the back of the houses, in the middle of each square, for communal leisure of their dwellers (see Figure 2-28), which explains the reason for the name *Quintalões*. The courtyards had grass, trees, and a shelter with laundry tubs and ovens.

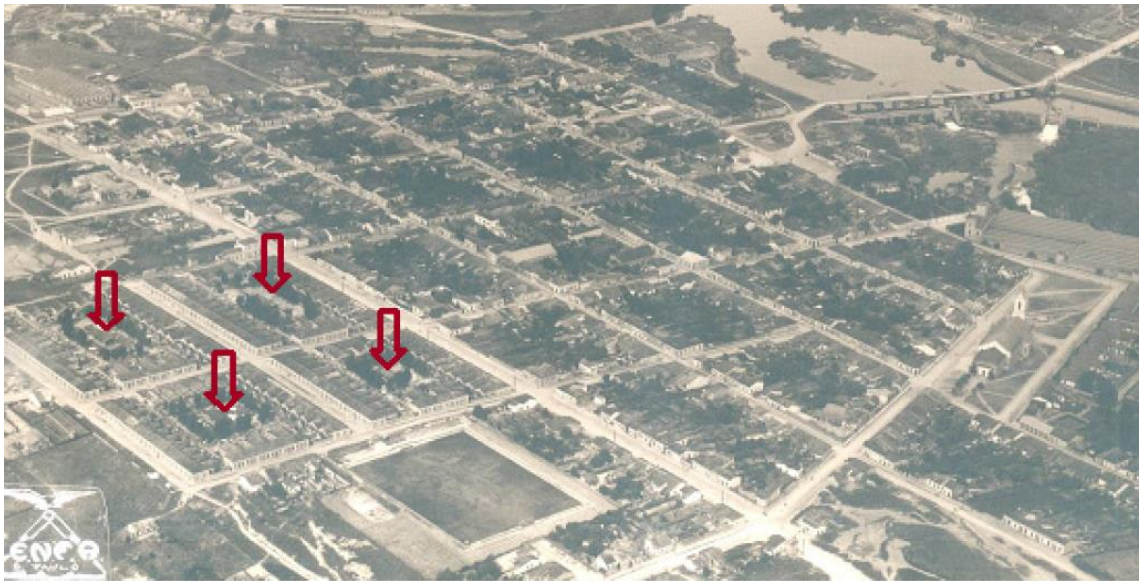


Figure 2-27 - The four squares where the Quintalões were built.

Source: Monfré (2009).

Figure 2-28 - Model of the Quintalões, in the state of São Paulo.

Source: Monfré (2009).

Monfré (2009) suggests two possible reasons for the development of those courtyards. One of which is that the developer had socialist ideologies, as he intended to establish the way the inhabitants would relate to each other. The other associated with the budget, as the use of communal equipment/facilities, such as

laundry tubs, and ovens, would have a lower cost in comparison to building them in each of the houses.

2.1.4 The Development of Housing for the Lower Income People between the Years 1930 and 1964

In the 1930s, the Great Depression occurred in the USA and had a strong impact on the exports from Brazil. The exportation of coffee generated US $445.9 million by 1929, and it had decreased to US $180.6 million in 1932. By the start of the Great Depression, coffee represented 75% of the exported products, and the exports represented 10% of the GDP of the Brazil (Baer 2003). In order to respond to the consequences of the effects of the American crisis towards the country, Brazil experienced a more impressive industrialisation. It was also decisive for the Brazilian government to adopt the Keynesian concepts (Fonseca 2003; Carvalho 2008), which stated that the government should intervene more with the problems that its country suffers (Cecco 1990; Henderson 2007).

With an interventionist government, the social problems of the country had begun to be widely discussed. Amongst the social problems, the housing issue became one the main concerns for the government in that period, as the government believed that the housing matters had an ‘influence on the way of life and ideological formation of the workers’ (Bonduki, 1994, p.73). Housing was considered one of the main bases for the political support from the population and it was given a priority that it had not previously received. This subject was not only considered important by the government but also by the academic and journalist fields. Seminars, articles, and research about this topic arose during that period in the country. These events happened because it was believed that the country could no longer tackle the housing problems without an intervention from the government. Until 1930, the housing issue used to be discussed primarily by doctors and sanitarians, as the governments concern was to avoid houses considered unsanitary and immoral (Bonduki 1994; Maricato 1997). The government’s interventions were basically to allow those types of housing to be demolished, and to allow tax exemption for construction of houses with the required sanitary conditions. However, since 1930, the new range of professionals, such as engineers, sociologists, and lawyers, taking part in the discussions about the housing issues, influenced a change of government strategies towards the housing problems. The main concern of the government was

no longer to eliminate the unsanitary and immoral houses but to provide facilities for people to afford a house.

It was in that period that the first of the new government interventions towards the housing issues was introduced in Brazil (Azevedo, 1988; Moreira, 2009). The first proposal was the modifications to the system of the Institutes of Retirement and Pension (*Institutos de Aposentadoria e Pensão* – IAPs) in 1937, to offer tools for financing housing. Those institutes had the function to offer social security for the workers. Every worker who contributed paying the fees for the IAPs was considered to have an association with those institutes. Due to those alterations in the capacity for financing housing via IAPs, they became responsible for the construction of only approximately 125,000 houses between the years 1937 and 1964 (Almeida 2009). These alterations were considered as the first effecting government intervention in the housing problems in Brazil. These alterations allowed the use of the resources from those institutes to finance construction and acquisition of dwellings. The IAPs contained 3 plans: Plan A was to rent or sell housing built or bought by the IAPs for people who were associated with these Institutes, mainly for low-income people; the Plan B was to finance the acquisition or construction of houses to people who were associated with the IAPs and the Plan C was to provide mortgage to any person or company. The Plans A and B had social concerns, as it aimed to provide facilities for people to afford living in a house, while the Plan C was to make the IAPs profitable (see Table 2-1) (Bonduki, 1994).

Table 2-1 - The plans of the IAPs and its roles.

Plan	Function
Plan A	To finance the acquisition or construction of houses aimed at people who were associated with the institutes, mainly for lower income people.
Plan B	To finance the acquisition or construction of houses aimed at people who were associated with the institutes.
Plan C	To provide mortgage to any person or company.

To make possible for lower income people to afford buying a house, it was also necessary to achieve a reduction of the cost of housing. One of the concerns in relation to the reduction of price of house was with the cost of land. The real estate speculation in the major cities such as Rio de Janeiro and São Paulo led to the rise of price of land in the city centres (Bonduki 1994; Maricato 1997). Therefore, in order

to achieve cost reduction in the construction of housing, it was proposed for the development of subdivisions of land in the periphery of the cities. The proposers of this idea stated that the price paid for a full house in the periphery was equal or less than the rent of a single room in a *cortiço* in the city centre. Nevertheless, they had the challenge of convincing those people to move to the peripheries and leave the central areas, where they were close to their work and had access to all the urban facilities. Besides living in a full house, with more space and better quality of construction than a room in a *cortiço*, another advantage presented to convince the dwellers was the fact that they would have the chance of being the owner of the property where they lived. Although the houses built in the periphery presented the benefits , the dwellers in the 1930s still preferred to live in the city centre. This choice was related to the lack of public transport that connected the periphery to the city centre (Bonduki 1994). The government sought solutions to provide public transport for the population to live in the peripheries. However, besides the problems with transport, the expansion of the urban fabric could also bring more cost for the city with infrastructure (Barbosa 1942; Moraes 1942).

The Brazilian architects were also pursuing proposals for methods of construction and architectural design with low cost. In that period, the modern architectural movement was taking place in Europe. One of the proposals of this movement was the simplification of the architectural design and construction methods for housing, as a response to the consequences left by the First World War (Avery 2003).The Brazilian architects considered these concepts suitable for their pursuit of low-cost housing. The 1st Congress of Housing in Brazil, held in 1931, was influenced by the idea of the Minimum Dwelling, presented in 1929, in the 2nd International Congress of Modern Architecture, held in Frankfurt. The Congress of 1929 discussed the necessity of reducing the cost of houses to make them affordable for lower income people. Simplification of construction techniques, finishing materials, and standardisation of house design were some of the proposals presented by architects and engineers to achieve the reduction of cost in the production of housing. The Brazilian engineers and architects saw the simplification and standardisation of house design that occurred in Europe during the interwar period as an applicable solution for the reduction of budget on the housing production in Brazil. They believed that the variety in housing design should be avoided, and it was necessary to establish specific dimensions for each room of the houses. They also believed that the adoption of modern architecture in the houses could influence their dwellers'

behaviours. By producing modern housing, the architects would also lead their dwellers to adopt a ‘modern way of life’ (Bonduki 1994).

The modernist architecture had been introduced in Brazil in the 1930s, primarily through the official buildings, this was by some of the most renowned Brazilian architects, such as Oscar Niemeyer, Lucio Costa, Affonso Eduardo Reidy, and Attílio Correa Lima. It was in that decade that the most influential Brazilian modern building was constructed: The Ministry of Education and Health. During the development of that building in Rio de Janeiro, the designers of the project - who were Niemeyer, Costa, Reidy, and other modernist architects - persuaded the minister to invite the architect Le Corbusier to go to Rio as consultant on the project. The building, and the visit of Le Corbusier, have both settled the influence of their style in the Brazilian official buildings afterwards (Fisher 1998). These pioneers of the Brazilian modernist architecture were also responsible for the design of some of the housing buildings developed by the government in that period. Having such renowned architects for the development of housing for lower income people makes it clear that the government not only intended to produce a high number of housing, but also demonstrates its concern with the quality of housing that was being produced.

It was through the Plan A of the IAPs that architects were able to apply the modernist concepts, such as mass construction and standardisation, to the design of residential buildings for lower income people who were associated with the institutes (Ferreira 1940). Designed in the 1940s by Eduardo Kneese de Mello, the Japurá building (see Figure 2-29 and Figure 2-30), located in São Paulo, is considered one of the firsts to use some of those concepts in Brazil. It was mainly inspired by Le Corbusier’s unité d’habitation (Galesi & Neto 2002), whereas Le Corbuiser proposed the integration between dwelling and community facilities, and features such as the use of pilotis and roof gardens (Le Corbusier 1953).

Figure 2-29 - Japurá building, built in the 1940s, in São Paulo.
Source: Available at: http://www.vitruvius.com.br/revistas/read/arquitextos/03.031/724 (Accessed: 07th May 2014).

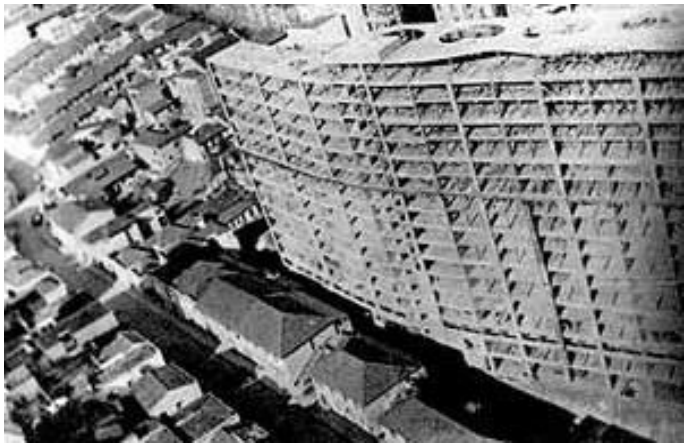


Figure 2-30 - Japurá building, built in the 1940s, in São Paulo.
Source: Available at: http://www.vitruvius.com.br/revistas/read/arquitextos/03.031/724 (Accessed: 07th May 2014).

A considerable number of houses developed by the IAPs were built in the state of Rio de Janeiro, which was the capital of the country in that period. Amongst the 125,000 houses, almost 50,000 were developed in the state of Rio de Janeiro. It was more related with the fact that the state of Rio housed the political and economic hub of the country than to its quantitative demands (Bonduki 1994).

One of the residential buildings developed in that period, considered one of the most famous housing developments built through the IPAs, both domestically and internationally, was the Prefeito Mendes de Moraes Residential, known as Pedregulho, in 1947-52. It was designed by Affonso Eduardo Reidy, and it was one of his best-known projects (Katinsky 1998b). The aim of this project was to provide affordable housing to 570 working-class families in a neighbourhood in the city of Rio de Janeiro. It included habitation blocks, health centre, laundry, community centre, school, gymnasium, pool, and changing rooms (see Figure 2-31). The main

habitation block contained 272 flats in a seven storey building (see Figure 2-32) (Recaman 2004).

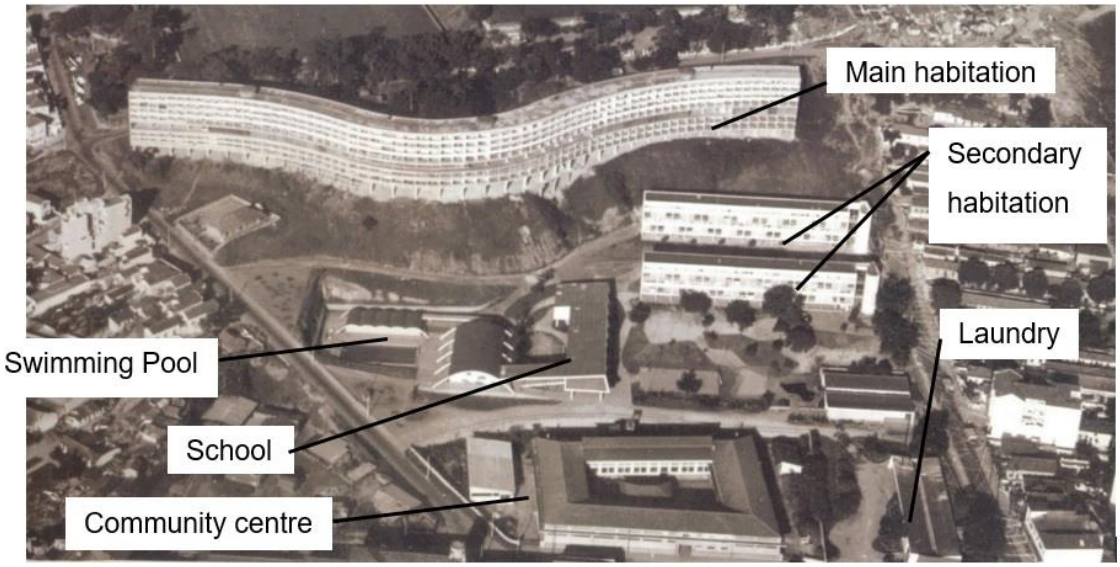


Figure 2-31 - Aerial View of the Pedregulho.

Source: Adapted from Bonduki & Portinho (2000), and Recaman (2004)

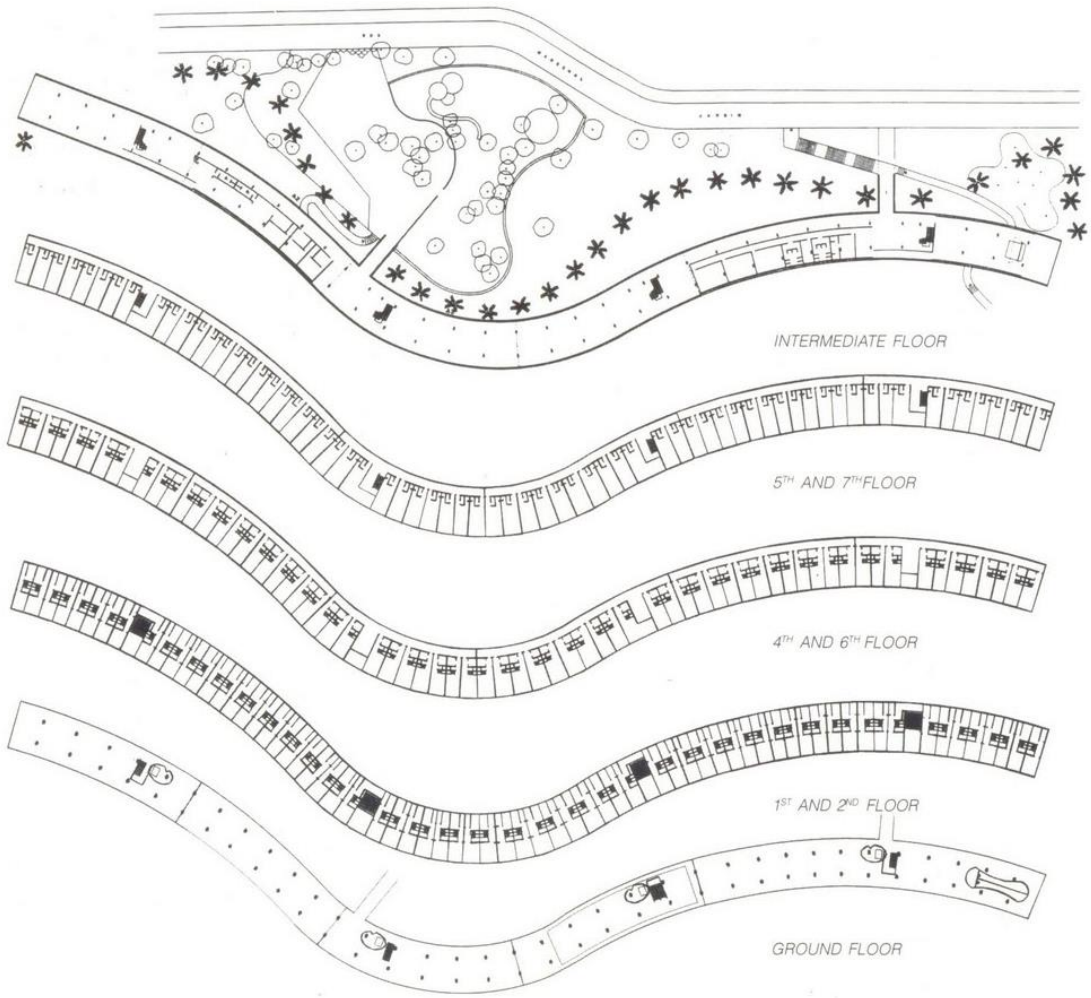


Figure 2-32 - Floor plans of the floors of the main habitation block of the Pedregulho.

Source: Bonduki & Portinho (2000).

Besides offering dwelling for lower income people, this type of housing had social purposes. That era was marked by the attempt to influence the behaviour of lower income people through the architectural design of their dwellings (Bonduki 1994; Cavalcanti 2003). The housing developed for those people was aimed at guiding and improving the habits and customs of those dwellers. This housing design would impose a new social organisation for the dwellers and lead them to adapt to this new type of community. It was believed that it was through the communal services present in this type of housing that the aimed new behaviour would be adopted by the lower income people (Cavalcanti 1987). The launderette of the Pedregulho is an example of the tools used by architects to achieve this aim. The architects eliminated the washtubs from the flats and provided only the launderette for washing clothes. It was an attempt to prevent women from hanging clothes from the windows (Cavalcanti 2003). This illustrates the attempts from the government and the wealthy in society to impose behaviours that they considered ideal to the lower income population through the housing developments. They believed that the lower income people would change their behaviours in order to adapt to the housing. This concept was present in most of housing developments built by the government in that era. Nevertheless, studies of post occupancy evaluations on these buildings revealed that people changed the dwellings instead of changing their behaviours. As in the aforementioned case of the Pedregulho residential building, for example, Cavalcanti (2003) states that the women who lived there used the pools to wash their clothes instead of the launderette, where they would gather with other dwellers that were doing the same activity. These situations demonstrate how the designers and planners ignored the local culture of the people when designing housing. Lara's (2008) critical view points to the fact that the modernist architecture imported from Europe brought alienation into the core of the Brazilian identity; and that the application of foreign architectural concepts to the design of houses in the country was deemed artificial.

Besides the reasons aforementioned, Lima (1963) - one of the pioneers of modern architecture and urban design in Brazil (Katinsky 1998a) - states that this type of housing was also chosen by presenting advantages in comparison to the dwellings built in single plots. Buildings with flats could house more people using less land than single houses. It would result in a reduction in the cost of development for housing. With less cost spent on land, it would be possible to offer community services to the dwellers, which would be more useful for them than the backyards

of single houses. Therefore, according to Bonduki (1994), there was a preference in the IAPs for the construction of this type of housing. The exceptions were in small and medium cities, where the price of the land was cheaper. For those types of cities, it was recommended to use terraced houses, as it would have lower cost of construction, but also contains communal services.

Despite the fact of the alterations on the IAPs being considered the first governmental intervention aiming to solve the housing problems in the country, it was still not a programme that was focusing exclusively in providing lower income people with houses. Those institutes presented limitations, such as the fact that the plans A and B, which were the social plans, provided housing only for people who were associated with those institutes. The IAPs fell short of succeeding to make a notable change in the housing scenario in Brazil. This lack of substantial results led the government to create the Foundation of Popular House (*Fundação da Casa Popular*) – FCP, in 1946. It was the first programme created purposely for the development social housing for lower income people (Azevedo & Luis Andrde 1982). The Institutes of Retirement and Pension were not withdrawn with the creation of the FCP, as the Foundation of Popular House programme aimed to complement the task of the IAPs, by building more houses, instead of replacing it.

The FCP was created initially with the aim of only developing social housing. However, in the same year of its creation, its scheme was changed to act in a more comprehensive form, covering most of the urban fields. With these alterations, it would not only sponsor construction of housing, but also urban infrastructure, such as water supply, sewerage, and electric power. These modifications happened due to the knowledge of the government that it was necessary to improve the infrastructure of the country before developing housing. The government also knew that with more construction happening in the country through this programme, the industry for construction materials would be subject to a rise in demand for its products. Therefore, those changes in the programme also included tools to finance construction material factories when necessary. Through this programme, they also intended to “study and classify the types of housing considered popular considering the lifestyle, architectural trends, climate and hygienic conditions, material resources, and labour of the main regions of the country” (Sergio Azevedo & Luis Andrde, 1982, p. 3).

Nevertheless, the financial resources available for the programme were not proportional to the aims of the proposals. Consequently, the FCP built less than 18,000 houses over 18 years, considerably less than the 100,000 that was anticipated when created. With a lower budget than necessary, the FCP could not achieve the results that they aimed, and it was shelved in 1964 (Azevedo & Luis Andrde 1982; Bonduki 1994; Moreira 2009).

Both the IAPs and FCP combined produced only around 140,000 houses in the period between 1937 and 1964. Despite not having noteworthy results in quantitative terms, they had substantial impacts in the country. The importance of the IAPs is due to the housing developments that they produced. Those developments brought to the country new typologies of housing, through the projects developed with the modernist concepts. The FCP programme represented the moment that the government created a programme for the development of social housing, and took the role of being fully interventional to the housing issues within the country, assuming that the housing market itself would not be able to solve those problems (Bonduki, 1994).

2.1.5 The Development of Housing for Low-income People during the Military Dictatorship (1964 – 1985)

In 1964, with the beginning of the military dictatorship in Brazil, both programmes were abandoned. The military dictatorship occurred in Brazil mainly due to the influence of the USA. During the Cold War period, the USA feared that the countries in Latin America could be influenced by the socialism of the USSR. In order to prevent it happening, the United States created the National Security Doctrine - NSD. Politically, and economically, linked with the USA since the end of the World War II, Brazil joined the National Security Doctrine. Through the NSD, the militaries would be able to intervene in politics by what they perceived as threats around them, which would include communist ideologies. That would enable them to take control of the government when they considered necessary, which they did in 1964. The economic crisis in the country during the governance of the then President João Goulart also made a favourable scenario for the military to take seat in the government of Brazil (Cohen 1987; Gonçalves 2011; Pion-Berlin 2011) It happened initially with the idea of being only temporary, not lasting more than a few months. However, the military dictatorship remained for 21 years in the country.

The military government aimed to keep a social stability and to avoid movements against them in the country. In order to achieve that aim, they had to count on the support from the popular mass. In the 1960s, the result of a study developed by the Institute for International Social Research presented that owning a house was considered the main aspiration of the workers in Brazil (Bolaffi 1982). Therefore, the creation of programmes to provide housing for people could bring the aimed support from the popular mass to the government. The first action of the military government in relation to housing was the creation of the National Housing Bank (*Banco Nacional de Habitação*) - BNH, in 1964, which became the sponsor for the construction of housing and for mortgage loans, mainly for lower income people (Azevedo, 1988).

One of the tools the Bank used to provide housing for lower income people was housing authorities, named Cohabs, which had the role of managing the construction and planning of popular housing. The Cohabs also had the duty of seeking solutions to reduce the cost of popular housing. One of those solutions was through the architectural design. Besides being simple, a standardisation system should be applied to the architectural design of popular housing. The architectural design of the housing estates should be basic and designed in a form that could be applied in distinct developments (Azevedo 1988). It makes it clear that the concern of the government was only with the quantity of houses, instead of their qualities.

Through the National Housing Bank, around 5 million houses were built between the years 1964 and 1986, which was the period of operation for the bank (Azevedo & Andrade 1982; Melo 1992; Bonduki 1994). It strongly contrasted with the number from the previous programmes, which were the IAPs and the FCP, both producing only approximately 140,000 houses. The number of houses constructed through the BNH represented about 25% of the total number of houses built in Brazil over the years of existence for the BNH (Medeiros 2011). Despite representing a progress in relation to the number of houses, those built through the Bank were considered dwellings with lower quality of living conditions in comparison to the ones developed by the previous programmes. The housing estates developed through the BNH were normally located in the periphery of the cities. Those developments were usually composed either of houses, with single plots, or of buildings with flats, without lifts. The inferior quality of construction and the location of those housing estates were pointed out as the main problems with the housing developments developed through the Bank. They were normally located in areas without infrastructure and far from

the city centres, which led to the expansion of the urban fabric of the cities (Sanvitto 2010). According to Bonduki (2000) and Negrelos (2010), the architectural monotony caused by the mass production (see Figure 2-33 and Figure 2-34) along with the expansion of the cities, caused by the location of those developments in the peripheries, were amongst the main characteristics of the housing developments produced through the National Housing Bank.

Figure 2-33 - Housing developments built in 1983 through the National Housing Bank.
Source: Negrelos (2010).

Figure 2-34 - Housing developments built in 1983 through the National Housing Bank.

One of the reasons for the decrease of the quality of housing produced by the BNH in comparison to the previous programmes is related to the fact that the housing production during the military dictatorship took mainly an economic role, instead of social purposes. The government believed that the housing programmes could help the country to cope with the economic crisis that it was suffering, as the construction industry was known for being able to generate a notable number of jobs, mainly through its labour demands. Therefore, with the improvement of the construction industry, more jobs would be offered in the country. Thus, it was through the construction of popular housing that the government aimed to reach the improvement of the construction industry and then generate more employment and improve the economy (Medeiros 2011).

The National Housing Bank offered financing and subsidies to help lower income people to purchase a house. Nevertheless, despite the efforts of the Cohabs to offer houses with low cost and the facilities of financing and subsides offered by the Bank, the lower income families were still not able to afford to finance a house. Therefore, most of houses financed by the BNH were to middle class families (Azevedo, 1988). The financing systems of the National Housing Bank were mainly focused on

families who earned up to three times the minimum wage, although those families were not able to finance a house, even the ones developed by the Cohabs, which had lower cost. For that reason, the BNH created specific programmes to provide those families with houses. However, the amount of housing produced by those programmes represented only approximately 7% of the total of housing produced by the Bank over the years (Medeiros 2011). Between the years 1964 and 1986, only 33% of the houses developed through the National Housing Bank were for lower income people (Santos, 1999). Therefore, despite the substantial number of houses financed by that bank, it did not have significant impacts in the production of housing for lower income people.

During that period, the urban population kept increasing in Brazil. It has been since the 1970s that most of the Brazilian population has lived in the cities (see Figure 2-35). With the failure of the government to provide suitable housing for families with lower income, the housing deficit increased in the country. The housing deficit in Brazil, by the year 1985, was approximately 7 million homes (Osório 2003). According to Joao Pinheiro Foundation (2016), the concept of housing deficit is defined by the shortage of available homes, including those that are uninhabitable due to their precarious construction. This concept also includes the need to increase the stock of homes for low-income people who cannot afford to rent a house from private agencies and residents who live in rented houses with high density of people. People who live in places that have non-residential purposes are also included.

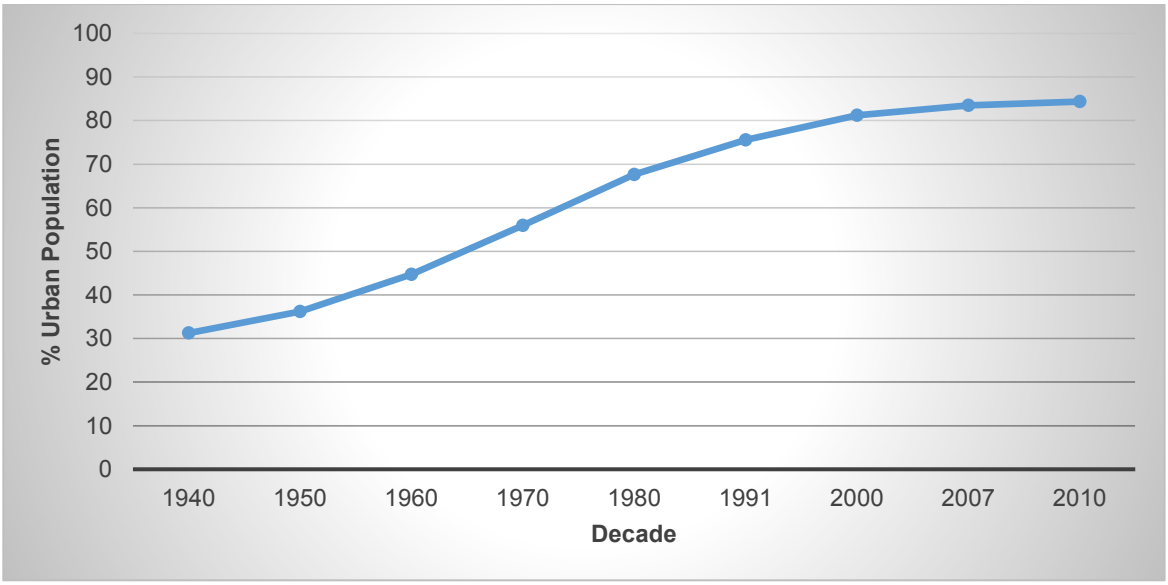


Figure 2-35 - The percentage of the urban population in Brazil between the years 1940 and 2010.

Source: Adapted from Brazilian Institute of Geography and Statistics – IBGE. Available at: http://seriesestatisticas.ibge.gov.br/series.aspx?vcodigo=POP122 (Accessed: 20th May 2014).

Movements against the military dictatorship by the Brazilian population happened over the years and contributed to the end of the military government, in 1985 (Martinho & Santana 2002).

2.1.6 The Development of Housing for Low Income People in the New Republic (since 1985)

The period in Brazil known as the "New Republic," which is the current period, began with the end of the military government, in 1985. By the end of the military dictatorship, the Brazilian population had a bad image of that government, caused mainly by the military repression towards the popular movements against the government that arose in the country over the years. The fact that the image of the National Housing Bank was associated with the military government, and the failures of that bank in solving the housing problems in the country were some of the reasons that led it to be withdrawn in 1986, the year following of the end of the military dictatorship in Brazil. With the end of the BNH, the bank Caixa - which is also a national public bank - replaced the National Housing Bank as being the main source of housing finance in the country. Nevertheless, in contrast to the BNH, Caixa did not present any strategy to solve the housing issues. During the first years of the New Republic, Brazil suffered a lack of effective intervention from the government towards the housing problems, mainly due to economic problems. This led to a constant increase in the housing deficit and popular movements demanding action from the government. Those movements were amongst the main reasons for the creation of the Constitution of 1988, which established the "right to housing" as a constitutional matter.

One of the features of the Constitution of 1988 is the decentralisation of the duty in solving the housing problems from the federal government to the states and municipalities. The housing programmes developed by the federal government in the 1990s counted on a significant participation of the state and municipal governments in the management and finance of the schemes. The state and municipal governments should contribute between 10% and 20% of the investment in the housing programmes (Valenca & Bonates 2010). Until 1995, the housing schemes were basically the provision of facilities for lower income people to finance

the purchase or construction of house. Nevertheless, in 1995, the government created the Pró-Moradia Programme, which had the purpose of building houses for low-income people. It sponsored state and municipal governments to build houses for low-income people. However, between the years 1995 and 1998, only around 174,000 houses were built through this programme.

Despite the families with up to three times the minimum wage contributing to around 80% of the housing deficit in the country, only approximately 8.5% of the investment in the housing programmes created by the federal government between the years 1995 and 2003 were beneficial to families of that income. This gap in effective social housing schemes added to the increase of the housing deficit in Brazil. From a housing deficit of 5.3 million homes in the urban areas in 1991, it rose to 6.4 million in 2000 (see Table 2-2). This increase has been more pronounced in families with an income of up to 2 times the minimum wage (see Figure 2-36), which increased 40.9% between the years 1991 and 2000 (see Table 2-2) (Bonduki 2008).

Table 2-2 - Housing deficit in Brazil in 1991 and 2000.

Income	1991		2000		Increase
in minimum wages	in thousands	%	in thousands	%	%
Less than 2	2,966	55	4,179	64	40.9
2 to 5	1,564	29	1,648	25	5.4
more than 5	844	16	621	9	26.2
Total	**5,374**	100	**6,448**	100	20.0

Source: Adapted from Bonduki (2008, p. 83).

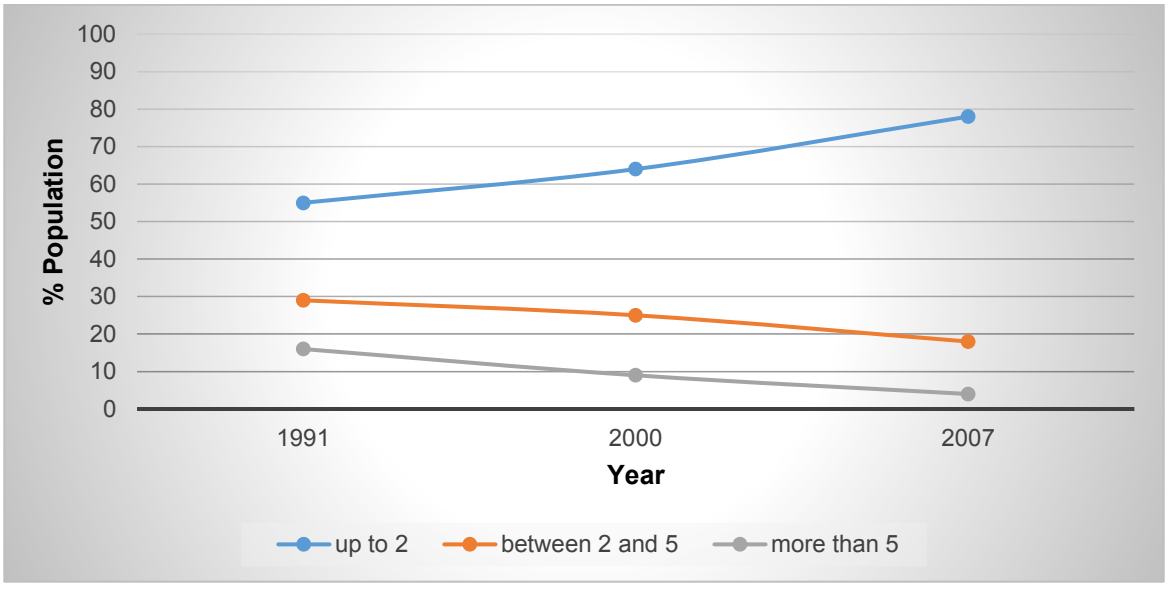


Figure 2-36 - Percentage of housing deficit in Brazil between 1991 and 2007, separated by income.

Source: Adapted from Joao Pinheiro Foundation (2016) and Furtado et al (2013)

This lack of investment for housing programmes in the 1990s was mainly due to the economic situation of the country during that period (Bonduki 2008; Valenca & Bonates 2010). Thus, that decade underwent popular movements claiming for actions from the government to solve the housing issues in the country. The main ones were the National Movement on the Fight for Housing, National Union for Popular Housing, National Confederation of Residents' Associations, and the Central of Popular Movements. The movements were part of those responsible for the government to create the City Statute, in 2001 (Rodrigues & Barbosa 2010).

The City Statute, also known as Law Nº. 10.257 of 10 July 2001, regulates the principles established in the Articles 182 and 183 of the Federal Constitution of 1988, which are related with the urban policy, including the right to housing, in Brazil (Brazil 2010).

> *The urban development policy carried out by the municipal government, according to general guidelines set forth in the law, is aimed at ordaining the full development of the social functions of the city and ensuring the well-being of its inhabitants…* (Brazil 1988, p. 74).

These articles also establish that the municipal governments are responsible for the implementation of the urban policy in their municipalities, through the Municipal Development Plan. The development plan, which is compulsory for cities with over 20,000 inhabitants, must be developed by the City Council. The article states that the development plan is the basic instrument of the urban development. The City Statute expounds the importance of the enforcement of the articles 182 and 183 in order to achieve social benefits. It also presents guidelines for the municipalities to develop their development plans.

The municipal development plan must establish all the guidelines for construction and use of land for its municipality. One of the characteristics of the plan's guidelines is the zoning system. The development plan of each Brazilian city recommends what is the targeted development to be built in each zone of the city. For instance, in some cities, there are areas where the construction of buildings only for residential purpose is recommended, with very limited height and utilisation of land. In other areas, especially in the city centre, the function of the building and its limit of rise and utilisation of land are less strict, which makes clear the intention to increase density in the city centre. It is possible to make a comparison with Le Corbusier's Contemporary City, which was a plan developed by Le Corbsuier as a response to

the dilemmas that the nineteenth-century cities were facing. For the so called Contemporary City, or City of Tomorrow, Le Corbusier proposed the concept of zoning, whereas he would define the use of land and the function of each part of the city. For instance, some areas would have only residential purposes, whilst others would be mainly for business. Another noteworthy aspect of his project is that 'the centre of the city must be constructed vertically' (Le Corbusier 1929, p. 163), as he believed the cities should have increased density at the centre.

Another important aspect of the City Statute that is required to be contained in the Municipal Development Plan is the establishment of the Zones of Social Interest of the city. One of the main aims of these Zones is to enable the public authorities to reserve vacant or unused properties and land in areas with infrastructure, services and urban equipment for the development of social housing (Carvalho et al. 2010). They are focused mainly on areas located in the gaps of the cities between the city centre and the periphery, which have infrastructure but are vacant or unused.

In 2003, the political party that took office in the Brazilian government claimed that its attempt in solving the social issues, which includes the housing problems, would be amongst its main actions during its government. One of the key features of that party was the proposed support to the lower income population. According to Marques & Mendes (2006), it was due to the populist characteristic of that party. Therefore, new actions to solve the housing issues in the country arose in that period, such as the creation of the Ministry of Cities, in 2003.

The Ministry of Cities was created to be the main tool of the government to coordinate the urban and housing policies in the country. Amongst the duties of the Ministry of Cities, it includes the responsibility of creating policies for sanitation and urban transportation. It also has the role to formulate and manage the National Urban Development Policy. This policy was developed based on the principles established by the City Statute (Bonduki 2008; Maricato 2006).

Also in 2003, the first National City Conference was held by the Ministry of Cities. The main aim of the conference was to establish the features of the National Urban Development Policy through comprehensive participation of the society. The National City Conference included 2.8 thousand delegates, representing, amongst others, groups of social movements, researchers, universities, architects, engineers, and governmental and legislative institutions. The conference had representatives from 3.4 thousands municipalities, from the 26 national states (UN-

HABITAT 2005; Bonduki 2008; Maricato 2006). Through that conference, the Council of Cities was elected, and it approved the proposals of national policies on housing, environmental sanitation, traffic, mobility, and urban transports in 2004. Also in the same year, the council approved the National Campaign for Participatory Development Plans, among other issues (Maricato 2006). It makes it clear that the urban planning and housing schemes in Brazil would no longer be developed only by the Federal Government, but in a more comprehensive form. It is also possible to identify that the municipalities have a key role in the management of its urban and housing development.

Once the National Urban Development Policy had been formulated, the government developed the National Housing Policy, also based on the City Statute, in 2004. The National Housing Policy is an element of the National Urban Development Policy, and it works as a tool of the government to coordinate the governmental strategies towards the housing issues in the country. It was through the National Housing Policy that the National Housing Plan (Plano Nacional de Habitação) – PlanHab was developed. The PlanHab defines the programmes and plans adopted by the government to tackle the housing concerns in Brazil.

To manage the funding of the housing policies and plans, the National Housing System was created. It contained two subsystems, where one of them is focused on social housing, which is the National Social Interest Housing System. States and municipalities must apply for the Social Interest Housing System in order to obtain the right to be funded by the National Social Interest Housing Fund, which is a branch of the National Social Interest Housing that provides funding for state and municipalities for the development of social housing.

The state government develops the State Plans for Social Housing, based on the City Statute, and submit it to the National System for Social Housing. Once approved, the state receives funding into the State Fund for the development of Social Housing, which is delivered from the National Fund for Social Housing (see Figure 2-37).

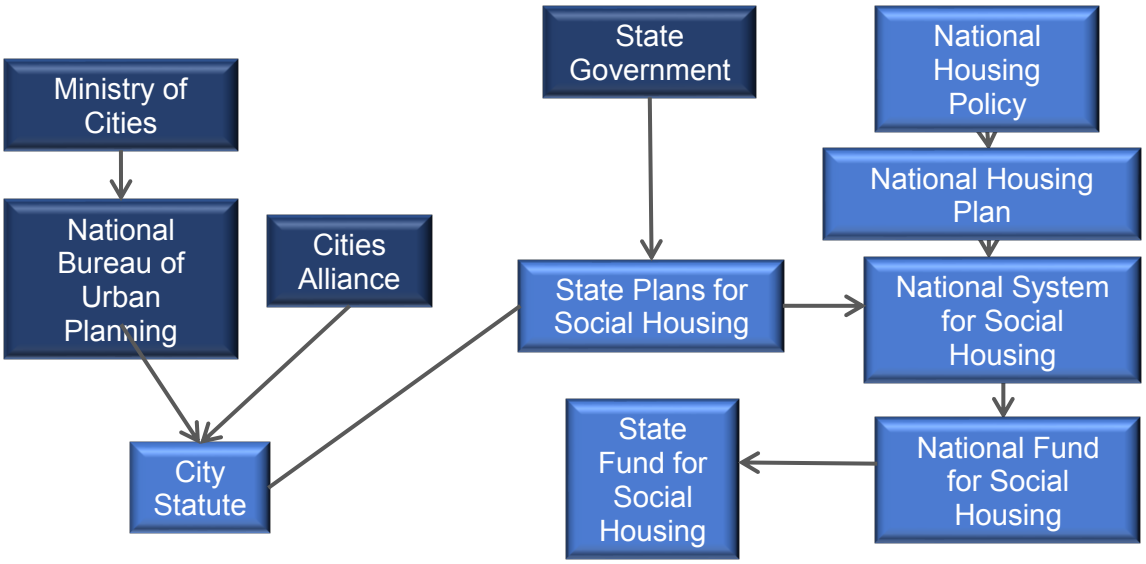


Figure 2-37 - Diagram of funding for the State Fund for Social Housing.
Source: Brazil 2010

Despite having amongst its aims the improvement of the urban environments and the decrease of the housing deficit in the country, the creation of the National Housing Plan - PlanHab had mainly economic reasons. During the decade of 2000, Brazil was suffering the effects of an international crisis, which negatively influenced its economy. In order to help the country to tackle the crisis, the PlanHab, which was launched in 2009, has presented measures to attain stabilisation of the domestic economy and generation of employment. The total investment for the proposals of the Plan was R$34 billion (BRL), corresponding to around £8.5 billion (GBP); whereas R$16 billion (BRL), corresponding to around £4 billion (GBP), would be invested in the construction of housing, funded by the public bank Caixa. The government believed that investment in the construction industry, through the construction of housing, would be able to generate more employment and to improve the economy. The PlanHab has proposed the development of 400,000 social houses for families who have an income of up to three times the minimum wage, as by the time that the Plan was being developed, those families represented 90.9% of the housing deficit in Brazil. The distribution of the construction of those houses throughout the country would be proportional to the housing deficit of each region, which was of approximately 7.2 million homes. The region with the highest housing deficit has been the Southeast region, which represented 37% of the total rate, and the region with the least has been the Centre-West region, with 7%. The PlanHab has also stated that the families with income of up to three times the minimum wage have the right to receive full allowance for the house and exemption

from compulsory insurance fees, which usually counts for 37% of the full price of the house (Brazil 2009; Hirata 2009).

The social housing schemes developed in Brazil since the creation of the Ministry of Cities have been mainly focused at families who earn up to three times the minimum wage. Nevertheless, it can also focus on other aspects, such as risk situations, e.g. houses built in the hills or on floodplains, and environmental or cultural preservation. The social housing developments are funded but not developed by the government. Private construction companies are sponsored by the government to develop the architectural design and the construction of social housing (Bonduki et al. 2003).

The main instrument of the government to accomplish the goals stated in the PlanHab was also launched in 2009, entitled My House My Life programme. Despite proposing the development of a considerable number of houses (1 million), the programme would achieve only 14% of the housing deficit of the country. As around 91% of the housing deficit is composed by the low-income families, which have an income of up to three times the minimum wage, the number of 400,000 houses proposed to those families would represent only 6% of the housing deficit. Another issue of the programme is the fact that it has mainly economic purposes, which is to improve the economy, rather than a social role (Bonduki 2009; Maricato 2003). It can be compared to the programmes developed by the National Housing Bank, during the military dictatorship, and presents similar consequences in the future.

One of the features that exposes the economic purposes of the programme is the fact that amongst the 1 million houses proposed, 600,000 are aimed at families with an income of more than three times the minimum wage. The risk of not presenting social strategies and being focused mainly on economic aspects reflects on the quality of the houses produced by the government programmes. One of the consequences is related to the location of those housing developments. It is commonly found throughout Brazilian cities vacant or unoccupied land owned by people who expect their lands to have a better value in the future, which is real estate land speculation. It results in the increase in the land price, leading to the social housing estates being developed in the peripheries of the cities, commonly with poor urban mobility, producing gaps in the cities between the central areas and the peripheral housing developments (Bonduki 2009; Hirata 2009; Maricato 2003). The instrument for the authorities to avoid this happening is the establishment of the

Zones of Social Interest. However, the development of social housing in those areas is only a guideline and optional, rather than mandatory.

Another aspect is related to its architectural design. The national public bank Caixa, which is the main sponsor for the social housing developments, presents a technical standard that must be followed during the processes of the development for the architectural design of social houses sponsored by that bank. That technical standard establishes features such as the size of the house and the materials used. In order to make profit, the construction companies responsible for the development of the architectural design and construction of social housing produces houses using the lowest limits established by the technical standard. The standardisation of their design is also one of the measures adopted by those companies in order to optimise its costs. By being the same for the entire country, that technical standard has led to a similarity between the architectural designs of social housing throughout the nation, without considering regional distinctiveness (Nascimento & Tostes 2010). Figure 2-38 and Figure 2-39 show similarity between two social housing estates built around 3,000km from each other.

Figure 2-38 - Social housing in the Centre-West region.
Source: Available at https://www.al.sp.gov.br/noticia/?id=339584 (Accessed: 30th June 2017).

Figure 2-39 - Social housing in the North-East region.
Source: Available at http://www.sindcomteresina.com.br/noticia.php?not=3049 (Accessed: 30th June 2017).

The diagram below presents a summary of the main characteristics of each era for the development of housing for the lower income people in Brazil (see Figure 2-40).

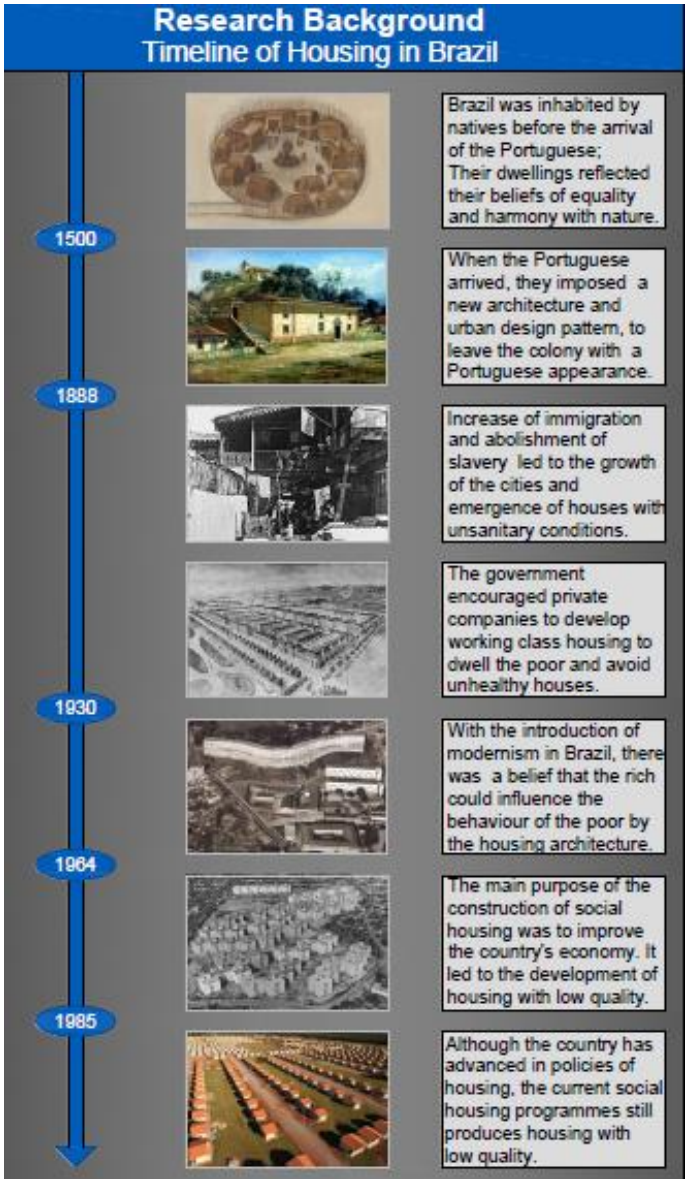


Figure 2-40 - Timeline of the development of housing for lower income people in Brazil.

2.2 The Context of the Study Area: The City of Campo Grande, Brazil

The city of Campo Grande is the capital of Mato Grosso do Sul, which is a state located in the Centre-West region of Brazil (see Figure 2-41). The city has approximately 830,000 inhabitants and an area of 8,000km^2 (Brazilian Institute of Geography and Statistics 2013).

Figure 2-41 - Maps of Brazil, Centre-West region, and the State of Mato Grosso do Sul.

2.2.1 The Formation of the City and the Development of Housing for the Lower Income People until the decade of 1920s

During the eighteenth-century, the state of Minas Gerais, in the Southeast region of the country, had its economy mainly based on the gold mining. By that time, Brazil was responsible for the biggest amount of exports of gold in the world, mainly from the state of Minas Gerais (Porto et al. 2002). However, in the second half of nineteenth-century, Minas Gerais suffered a substantial decrease in the production of gold, which led people from that state who worked in the gold mines to emigrate. Some of those people migrated to the south of the state of Mato Grosso. Until 1977, the state of Mato Grosso do Sul was part of the state of Mato Grosso. By the time the immigrants arrived from Minas Gerais to the south of the state of Mato Grosso, where the state of Mato Grosso do Sul is currently located, it was occupied mainly by farmers who worked with livestock. The cattle and fertile soils were amongst the

reasons that attracted the immigration to that area. Those immigrants arrived in 1872, setting the first village which, later on, borne the origin of the city of Campo Grande (Weingärtner 1995).

Between the late nineteenth and the first decade of the twentieth-century, the village was mainly based on agriculture and livestock. It contained only one street, some houses, and a few other buildings. The village had developed upon two streams, named Prosa and Segredo, which provided the required conditions for agriculture (Weingartner 2000). In 1889, Campo Grande contained approximately 40 houses; 10 of them had roofs composed of clay tiles, while 30 were covered by thatching. The walls were made of rammed earth, as it was a simple technique of construction and there was a lack of skilled labour and construction materials in that area (see Figure 2-42) (Arruda 2002b; Campo Grande 2013). The first houses in Campo Grande resemble the houses with colonial style of the town of Monte Alegre de Minas, where the first immigrants came from.

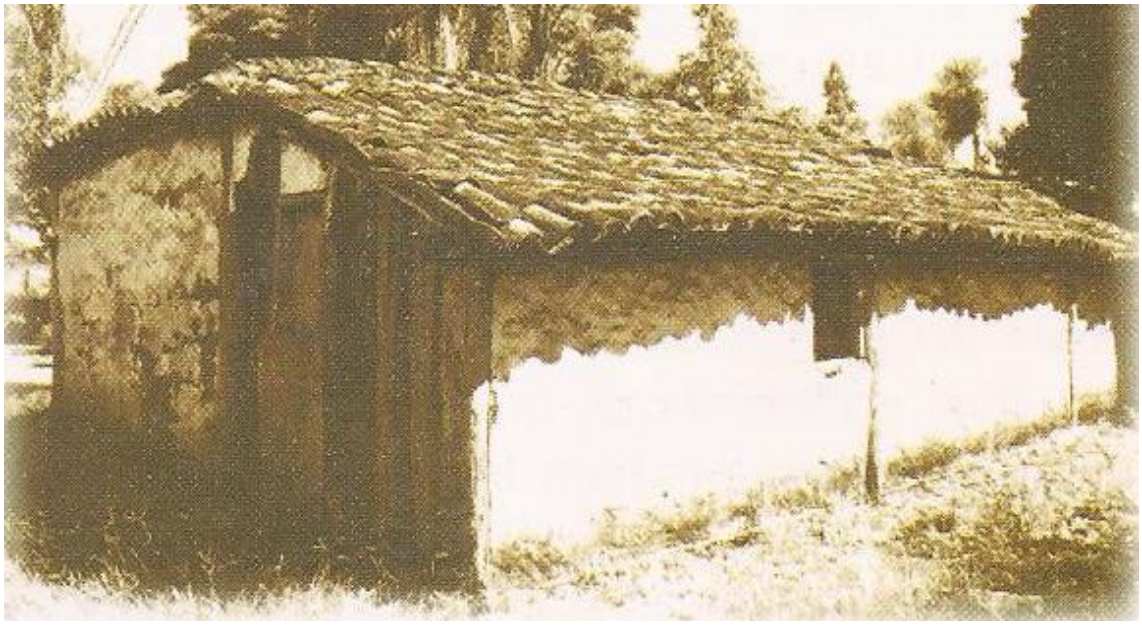


Figure 2-42 - House in Campo Grande built of rammed earth, in 1889.
Source: Arruda (2002, p.25).

Campo Grande has been officially considered a municipality since 1899, when it had approximately 320 inhabitants in its core (Arruda 2000). The main reason for this event was related to the development that was happening in that area due to the livestock. The export of cattle to the Mineiro Triangle, which is an area located in Minas Gerais, and to São Paulo helped in the improvement of the livestock market in the city. It also had an important location for the state, as it connected the capital, Cuiabá, to the Triangle Mineiro and the state of São Paulo.

The location of the city was also responsible for the construction of a railway that would connect the state of Mato Grosso to the Brazilian capital, which at the time was Rio de Janeiro, as well as to the South of the country, to the state of São Paulo, and to the coast. The railway was built aiming to improve the transport of goods exported from the state. It could also expand the trades between Brazil and Bolivia, as one of the cities located on the path of the railway is on the border with that country (Weingartner 2000). The project for the railway was officially presented in 1903, and it started to be built in 1905 (Arruda 2000).

During that time, the Brazilian government established regulations presenting guidelines for the development of buildings and urban planning. The guidelines for urban planning stated that the cities should have wide streets and orthogonal urban design. Those guidelines were created initially for sanitary reasons, as the major Brazilian cities were suffering due to the construction of dwellings that the authorities considered unhealthy, such as the *cortiços*. The implementation of those guidelines was mandatory in port cities and cities with rail infrastructure, due to their importance for trade, and the improvements/developments that they usually undergo. The guidelines were aimed to be incorporated in the city legislations through the City Codes (Weingartner 2000).

The City Codes were official papers developed by the municipal authorities to settle rules for construction, urban planning, and even social behaviours. The City Code of Campo Grande was created in 1905, due to the construction of the railway. It was based on the guidelines proposed by the Brazilian government towards buildings and urban planning. In 1909, the Plan of Alignment of the Streets and Squares of the Village was developed for the city of Campo Grande. That was the first urban plan of Campo Grande and it followed the rules established by the City Codes. By that time, Campo Grande had 1,200 inhabitants. The Plan presented an area of 105ha, with 380 plots, which had an area of 2,500m² each. The urban design was composed of 78% of plots, 17% of public streets, and 5% of public squares. The plots, which had the sizes of 40m x 60m each, were located in blocks. There were three assorted sizes of blocks: 120m x 120m, 120m x 160m, and 120m x 200m (see Figure 2-43). The sizes of the blocks were defined based on the sizes of the plots (Arruda 2000; Arruda 2001; Weingartner 2000). Before the Plan, Campo Grande presented an irregular layout. The reason for the orthogonal design of the urban plan was related to what the planners believed to be the rational design for urban

planning. They also had the idea that this new tracing would bring a 'civilized' appearance for the city (Gardin 1999; Trubiliano & Martins Jr 2008).

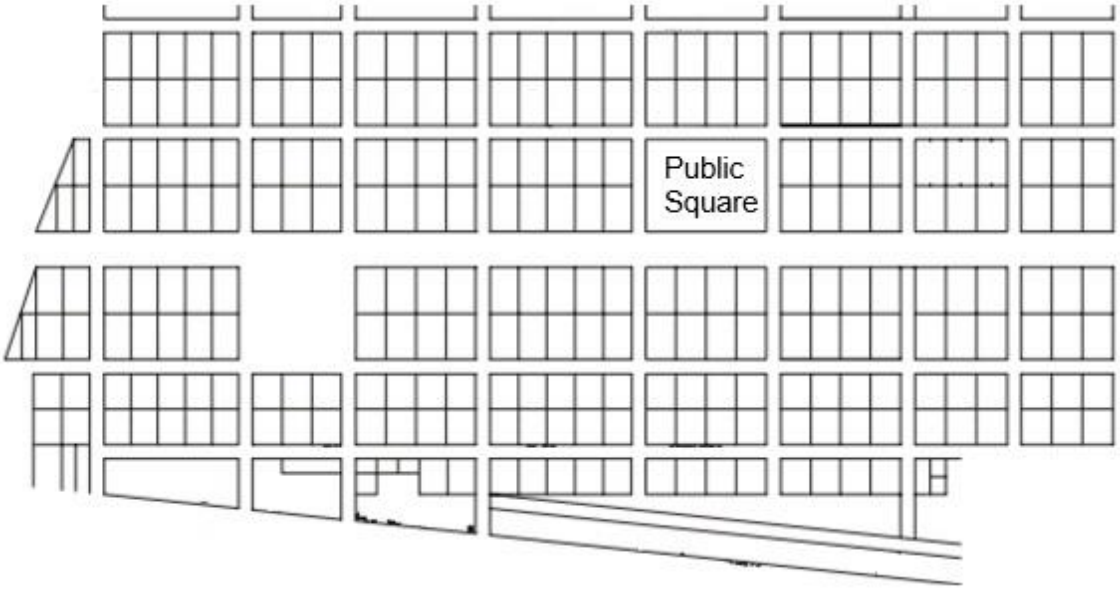


Figure 2-43 - First urban plan of the city of Campo Grande.
Source: Adapted from Arruda (2001, p. 13).

The houses were built to the front boundaries of their plots, as the front of the houses were normally used for retail. As the occupancy rates and use of land were restricted, the houses presented a large backyard to their plots. The dwellers used the backyards for plantations and for leisure (see Figure 2-44) (Weingartner 2000). Since the early 1910s, brick has begun to be used in the construction of walls for the houses in Campo Grande (Arruda 2002b).

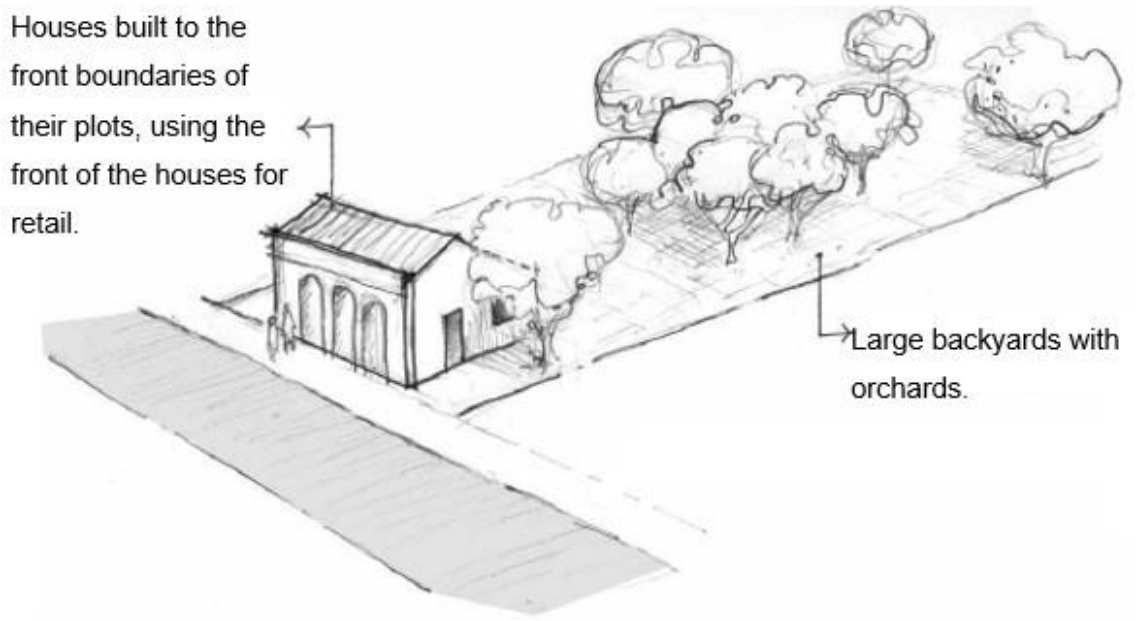


Figure 2-44 - Sample of house in Campo Grande in the first decade of the twentieth-century.
Source: Adapted from Weingartner (2008, p.37).

After the Plan for the Alignment of the Streets and Squares of the Village, Campo Grande underwent an increase in the number of inhabitants and buildings. From 1,200 inhabitants in 1909, it reached 3,300 inhabitants in 1919. The number of buildings went from 78 in 1910 to 460 in 1916. It happened mainly due to the completion of the railway in the city, entitled North West Railway of Brazil, in 1914, which brought development to the city (Arruda 2000; Weingartner 2000).

In the following decade, the city kept growing, and the size of the urban fabric of Campo Grande was 150% larger than it was in the 1910s. The delineation of the squares that emerged in that decade followed the measures of the City Codes proposed in 1909, through the Plan of Alignment for the Streets and Blocks of the Village. However, the sizes of the plots were smaller, being 20m x 40m for the corner plots and for the plots located in the smaller sides of the squares, and 20m x 60m for the other plots (see Figure 2-45) (Arruda 2000; Weingartner 2000). The creation of smaller sizes could slow the expansion of the urban fabric of the city.

In 1921, with the increase in the population and number of buildings, the municipal authorities developed new City Codes. It established the limits for the building occupancy rate for the land, and minimum sizes for the plots and width of streets. They also stated that the buildings should contain the ideal sanitary conditions, such as natural ventilation in all rooms, as by that time, the concern with avoiding the unsanitary constructions was present in the whole country. According to the Codes, the plantation of trees in every plot was also mandatory. The City Codes also settled that the developments should be undertaken only by professionals of the construction industry, such as architects and engineers (Weingartner 2000). A concern with the aesthetics of the buildings was likewise present in the Codes. They stated that the facades should present a uniform architectural style. During that period, one of the architectural styles dominated in Brazil was the Eclecticism (Arruda 2002b). The eclectic architecture is a combination of elements from different historical styles applied in the same building (Muthesius 1998; Bonamett 2006). Introduced in the city mainly by professionals of the construction industry who immigrated from the state of São Paulo, where that style was common in houses, the eclectic style was applied in the facades of the residential architecture in Campo Grande in the first decades of the twentieth-century (Arruda 2002b).

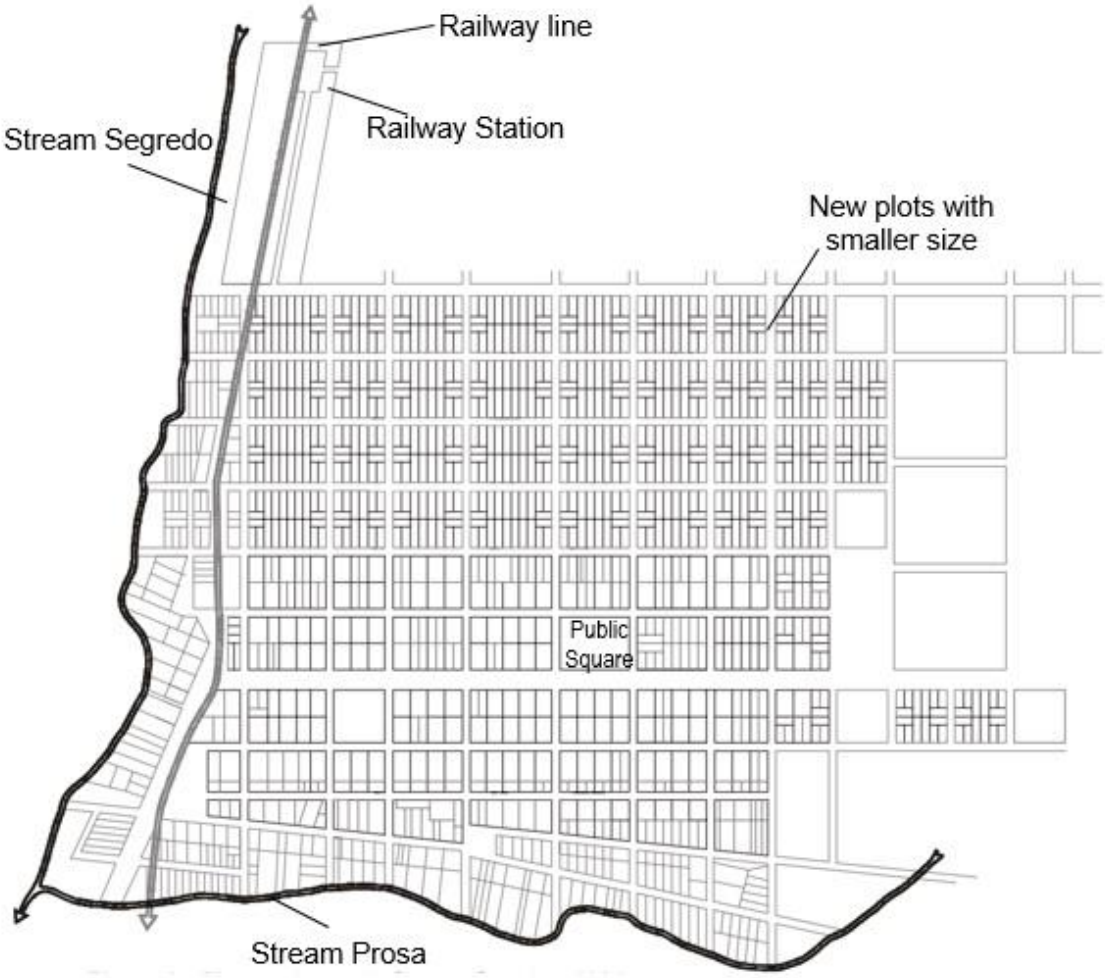


Figure 2-45 - Urban plan of the city of Campo Grande in early 1920s.
Source: Adapted from Arruda (2001, p. 19).

Also in 1921, a Military Headquarter was built in the city. In order to house the workers of the headquarter, the former workers of the railway and the other immigrants with lower income, the city council proposed the creation of a land subdivision for the development of housing in the same year, named Amambahy District (Rodrigues 1980; Arruda 2000; Arruda 2001; Weingartner 2000; Trubiliano & Martins Jr 2008; Trubiliano 2012). The city authorities developed the land subdivision, with 435 plots in 35 blocks, and offered the plots to be occupied by the population without charging for them. The dimensions of the plots with orthogonal shapes were 20m x 40m, following the rules established by the City Codes. For topographic reasons, the Amambahy District had a sinuous shape. Besides the topography, that area had the railways and walls of the headquarters as its boundaries, which also influenced its form (see Figure 2-46) (Arruda 2001). The Amambahy District was developed on the west side of the Stream Segredo.

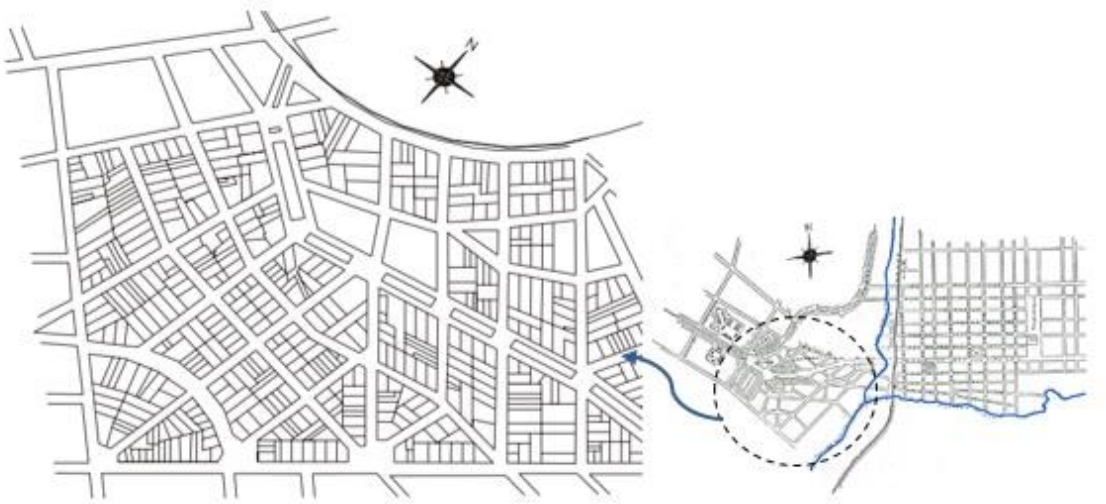


Figure 2-46 - Urban plan of the Amambahy District, in 1921.
Source: Arruda (2001, p. 19).

In order to encourage the construction of houses in that area, the city council offered benefits for developers who built 10 houses in less than 2 years. The benefits were exemption of construction taxes; 50% discount on other public taxes, such as public lightning and water supply taxes; and the ownership of the plots where the houses were built, after the completion of the construction. It justifies why there were groups of houses with the same architectural design in that area. The city authorities also presented specific rules for the construction and use of land in that district. For instance, buildings for retails would be allowed to be constructed only on the corner plots (Arruda 2001). The Amambahy District became mainly residential. The houses, with eclectic facades, normally had around 40m², with one or two bedrooms, drawing room, dining room, and kitchen; the bathroom was usually located outside the house. As the plots were wide, the houses were located in the middle of the plots, surrounded by trees, as required by the City Codes. The houses were constructed with solid brick manufactured in the region, and grouted with cement-lime mortars. They had wooden windows and white facades, in eclectic style. In the 1930s, four blocks were used for military housing. All the houses built for the military presented verandas on the facade, but their plan varied according to the hierarchy of the dweller (Figure 2-49 and Figure 2-50) (Arruda 2000; Arruda 2001).

Figure 2-49 – Houses for militaries built in the Amambahy District in the 1930s.
Source: Arruda (2001, p. 25).

Figure 2-50 – Houses for militaries built in the Amambahy District in the 1930s.

Another housing development built in the 1920s that also presented hierarchy distinction between the houses was the Vila Ferroviária (Railway Village). It was developed to house people who worked for the railways, from managers to machinist. The houses for the workers of the upper hierarchy presented bigger plots, wherein the house was located in the middle, following the main residential standard present in the city (see Figure 2-51); while the houses for most workers of the railway were made of timber and located in smaller plots (see Figure 2-52) (Weingartner 2000).

Figure 2-51 – House built for the workers of the railway, in the 1920s.
Source: Weingartner (2000, p. 47).

Figure 2-52 – House built for the workers of the railway, in the 1920s.

2.2.2 The Development of the Urban Fabric and the Urban Regulations of the City since the 1930s

Over the 1930s, Campo Grande underwent an outstanding increase of population. From 5,000 inhabitants in 1925, it reached over 23,000 in late 1930s. Consequently, the size of the plots developed in that period was smaller, as the demand for land

increased with the growth of the population. Since that decade, plots measuring 15m x 35m has become common. However, the houses maintained the characteristic of being located in the middle of the plots, surrounded by gardens and trees in the front and in the backyards (Weingartner 2000).

Although its population increased over six times between the years 1921, when it had 3,500 inhabitants, and 1937, when it achieved almost 23,000, the water supply networks of the city remained the same since its creation, in 1921. In order to avoid the problems from an underestimated water supply system, and also to improve other urban aspects, such as sewage systems and paving streets, the city council proposed the development of an Urban Plan for Campo Grande, in 1937. In line with the Urban Plan, a map of the city should be developed containing the existing plots. The map was necessary for the city council to stipulate the values of the municipal taxes for each part of the city. The municipal authorities requested the federal and state governments to fund the plan. However, in order to fund the project, the federal and state government imposed requirements, such as the need for an urban planning professional and a geologist to be living in the city while the Plan was being developed; and the Plan to be elaborated by a specialised firm. Besides the features, the Plan should contain strategies for the urban planning of the city, such as construction techniques of the buildings, which should be applied according to the topography and geology of the area; extension and widening of streets and avenues; predefinition of the location for public buildings, universities, libraries, working-class housing, and factories; amongst others. Having its completion in 1938, the Urban Plan presented a zoning concept. There were five zones: Commercial, Industrial, Residential, Mixed of First Category, and Mixed of Second Category (see Figure 2-53). It defined distinct rules for each area of the city, such as rules for land subdivisions; occupancy rates and setbacks technique constructions; number of floors of the buildings; and type of construction. Amongst the features of the Urban Plan, there was the statement that the minimum width of the plots in the Commercial Zone should be 10m, while the minimum for the other regions of the city was 12m, as there was an intention to leave the city centre more densified. The houses built in the Residential Zone should contain at least six rooms, except in some neighbourhoods such as the Amambahy District. Amambahy and other working-class housing areas were classified as Mixed Zone of Second Category. That zone was the region where working-class housing and houses with less than three rooms were allowed to be built. In both Mixed Zones of First and

Second Categories, it was allowed to build either residential or retail buildings. The Plan became law in 1941, named Law Nº. 39, and construction in accordance to the Plan started in 1942. It was the official Plan of the city until 1965, when it was replaced by a new plan (Arruda 2002a). It is possible to identify an intention in avoiding the occupancy of lower income people in the Residential Zone, as it established a minimum size for the houses to be built there and the prohibition of working-class housing developments in that area. This can imply a rapid increase of the price of land.

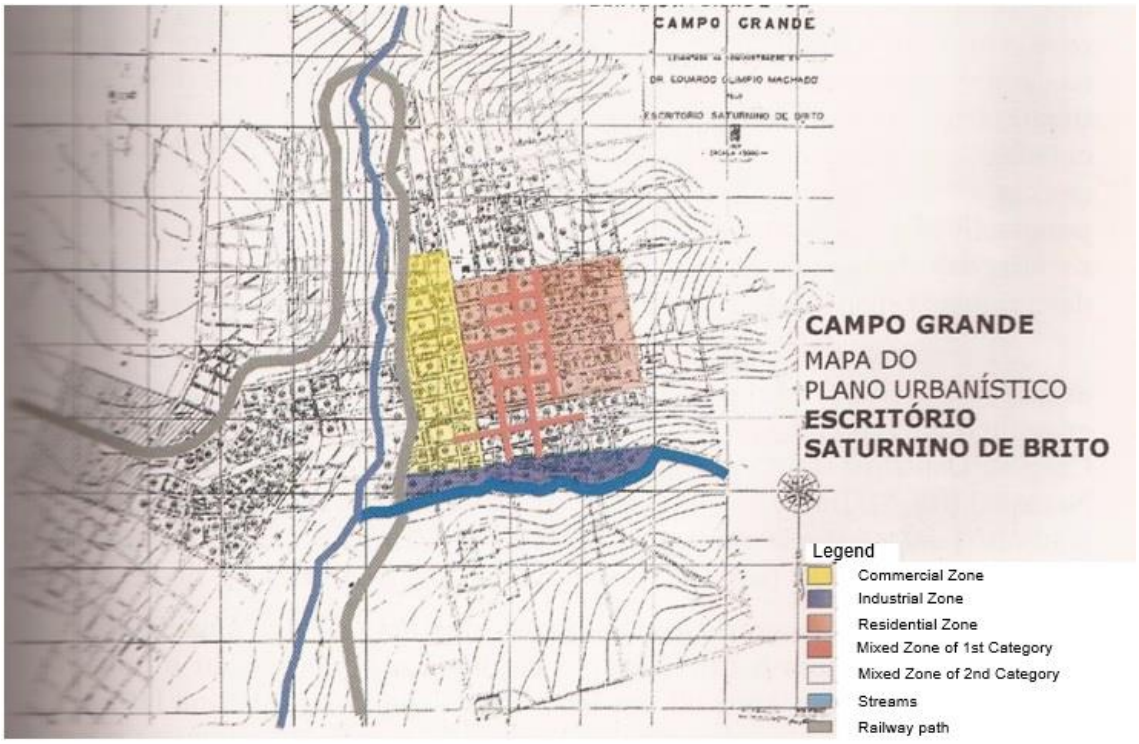


Figure 2-53 – Urban Plan of Campo Grande, presented in 1938.
Source: Adapted from Arruda (2001, p. 251).

The reasons that led to the development of a new Urban Plan for the city of Campo Grande in 1965 were related to the substantial expansion it suffered during that decade. The creation of the new Brazilian capital, Brasilia, in the Centre-West region, implicated in an impressive development of that region (Alves 2005; Oliveira Neto 2012). Campo Grande, as other cities in the Centre-West region, underwent a growth of population and territorial expansion as never before. The immigration of people with lower income, who could not afford living in the central area, led to the development of neighbourhoods in the periphery of the city. Almost 70 land subdivisions arose in Campo Grande in that period. Among those new areas, there were land subdivisions that were disconnected with the rest of the urban fabric of the city, being accessed normally only by one road (see Figure 2-54). The average

of increase of the urban fabric of Campo Grande in the 1960s was 330ha per year, becoming three times larger than it was in the previous decade (Arruda 2000; Campo Grande 2013; Weingartner 2000). The creation of these new areas was a consequence of the increase in the price of land in the city. The land subdivisions in the periphery offered bigger plots in comparison to the ones in the city centre. Nevertheless, the furthest areas kept with little occupation during that time, and the areas around the city centre presented a lower density of inhabitants in comparison to the central areas. The density in those areas was around 5 and 25 inhabitants/km^2, while the central areas reached over 75 inhabitants/km^2 (Weingartner 2000).

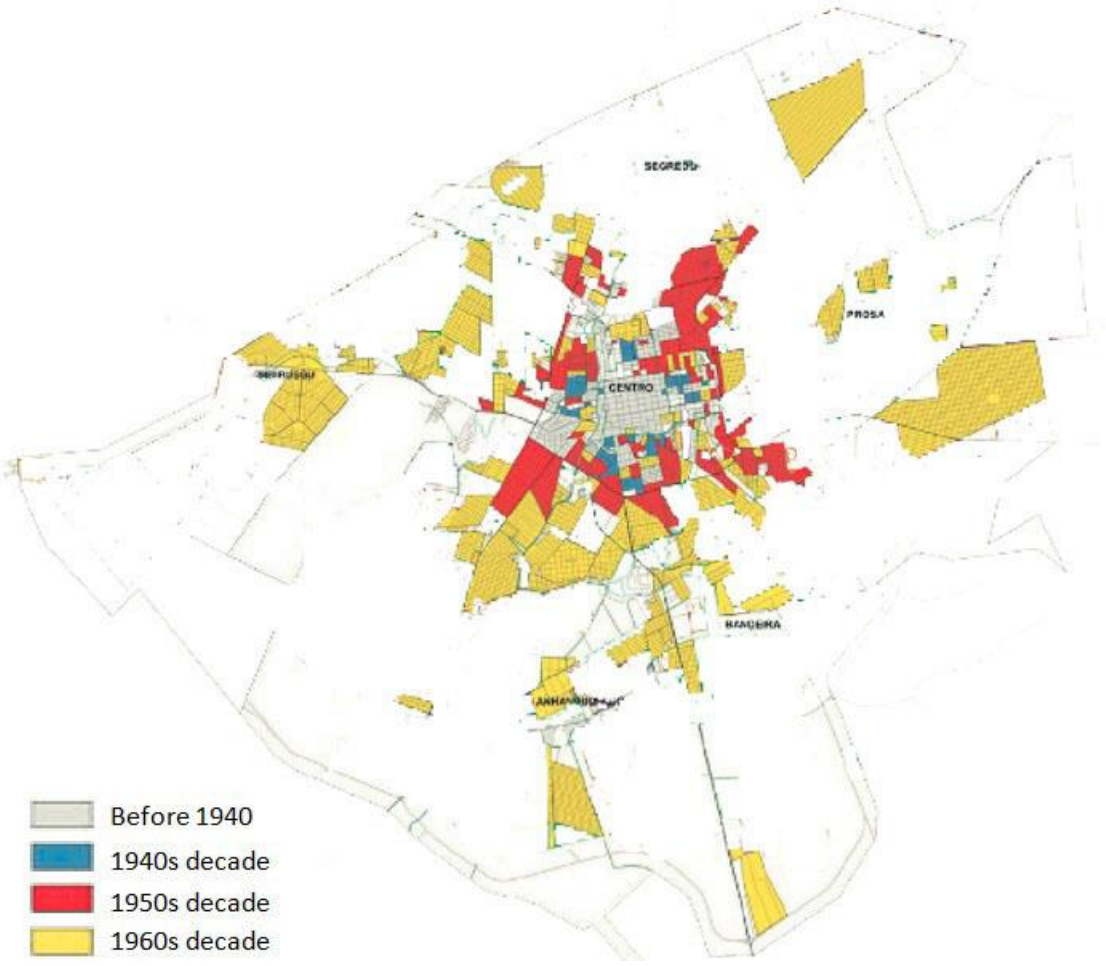


Figure 2-54 – Map of land subdivisions in Campo Grande, separated by decades.
Source: Adapted from Campo Grande (2013).

The legislation of 1965, named Law N$^{o.}$ 25, redefined the zones of the city. The zones were named Commercial, Industrial, Residential, and Rural. In the Residential Zones, the development of retail buildings and other services, such as hospitals, schools, and healthcare centres, was allowed but with restrictions. Among the restrictions, there was the statement that these buildings were permitted to be

constructed only in corner plots, and they could not emit harmful gases nor generate pollutants in the environment of the neighbourhood.

In 1970, the Plan for Integrated Development of Campo Grande was created as a response to the demands from the national government, which required municipalities to develop urban planning for their cities. In order to create the plan, urban aspects of the city were evaluated. It was through this evaluation that the urban gaps were pointed out. The urban gaps are the areas between the peripheral land subdivisions and the central areas. The land subdivisions that had emerged in the previous decades overestimated the number of inhabitants in the city, as the total number of plots that existed by that time could house around three times the number of inhabitants of the whole city. It was leading to an expansion of the urban fabric, where the peripheral developments did not have infrastructure and had limited access to the city centre. The Plan for Integrated Development of Campo Grande aimed to reverse this situation. It created Zones of Priority Urbanisation, where the new residential developments should be built (see Figure 2-55) (Weingartner 2000).

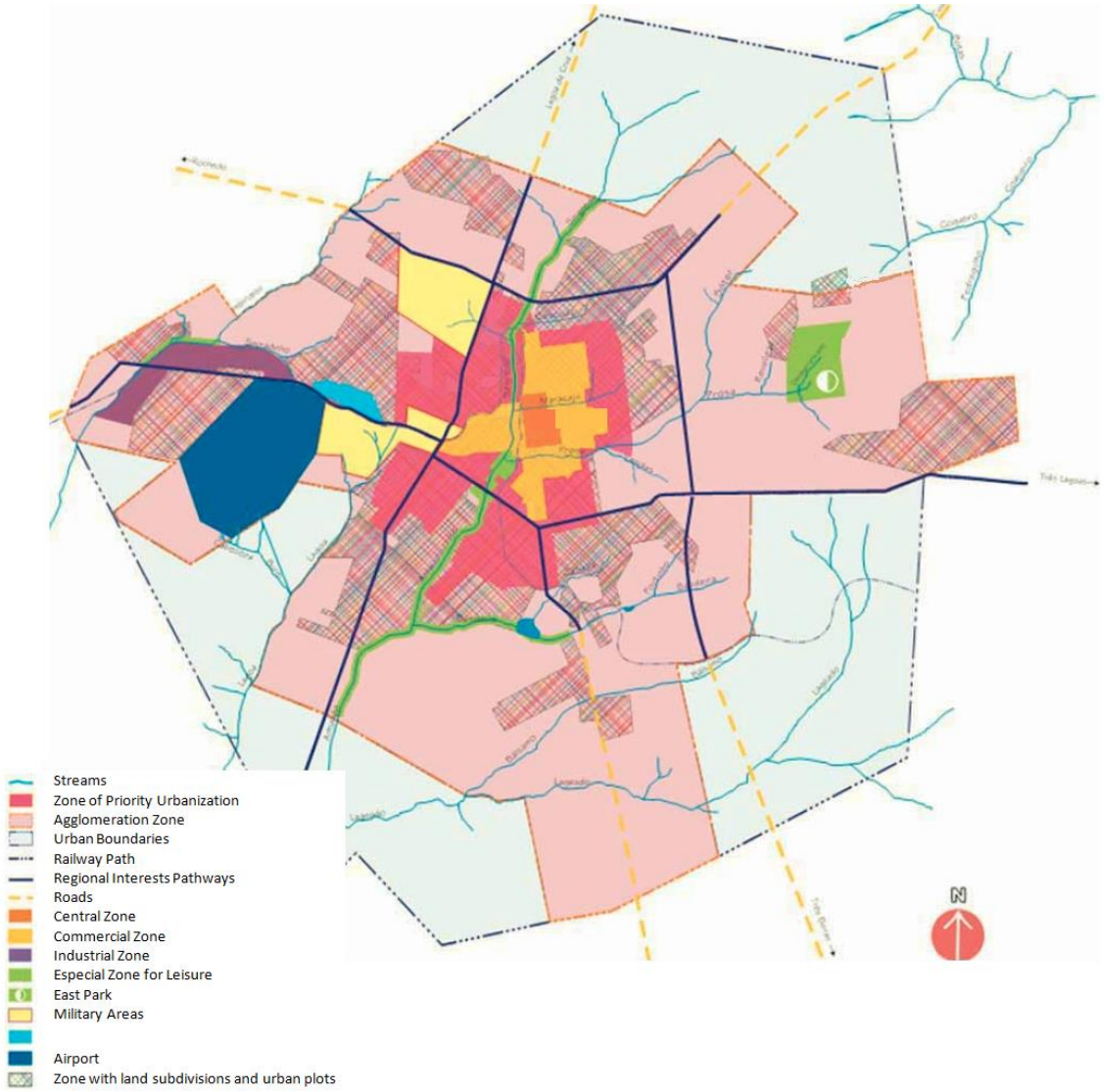


Figure 2-55 – Map of the Plan of Integrated Development of Campo Grande.

Source: Adapted from Weingartner (2000).

Also in the same decade, in 1977, the state of Mato Grosso was divided in two, and then the state of Mato Grosso do Sul was created, having the city of Campo Grande as its capital (Roberto & Queiroz 2006; Murtinhos 2012). As a capital, Campo Grande would suffer a significant increase on its population, urban area, and economy. In order to have an orderly urban growth, and to respond to a demand from the federal government, the city council developed the Plan for Urban Complementation, in 1979, which would be the basis for the new Regulation for Use of Land. It was elaborated by the architect and urban designer Jaime Lerner, who had developed urban plans for the city of Curitiba in the same decade. The Plan settled strategies for the location of the popular housing developments and access. It defined the routes for the public transport and the role of the main roads. It also established a zoning system that sorted the city into Industrial, Services, Green, alongside different scales of density, from High to Low Zones. The High-Density Zone, where multifamily housing, retail, offices, hotels, banks, and places for leisure, such as theatres and cinemas, among others were permitted, was designed in axes, surrounded by the Median Density Zone (see Figure 2-56). The intention was to lead the city to develop and be more densified along these axes, which were the main accesses to the city. There were the Low-

Density Zones One and Two. The Zone One allowed the construction of schools, retail, single-family terraced and detached houses, among others; while the Low-Density Zone Two did not permit retail, and allowed only single-family detached houses to be built. Nevertheless, all the zones included a list of “permissible use” which are the exceptions that could also be contained in those zones (see Table 2-3) (Lerner 1978).

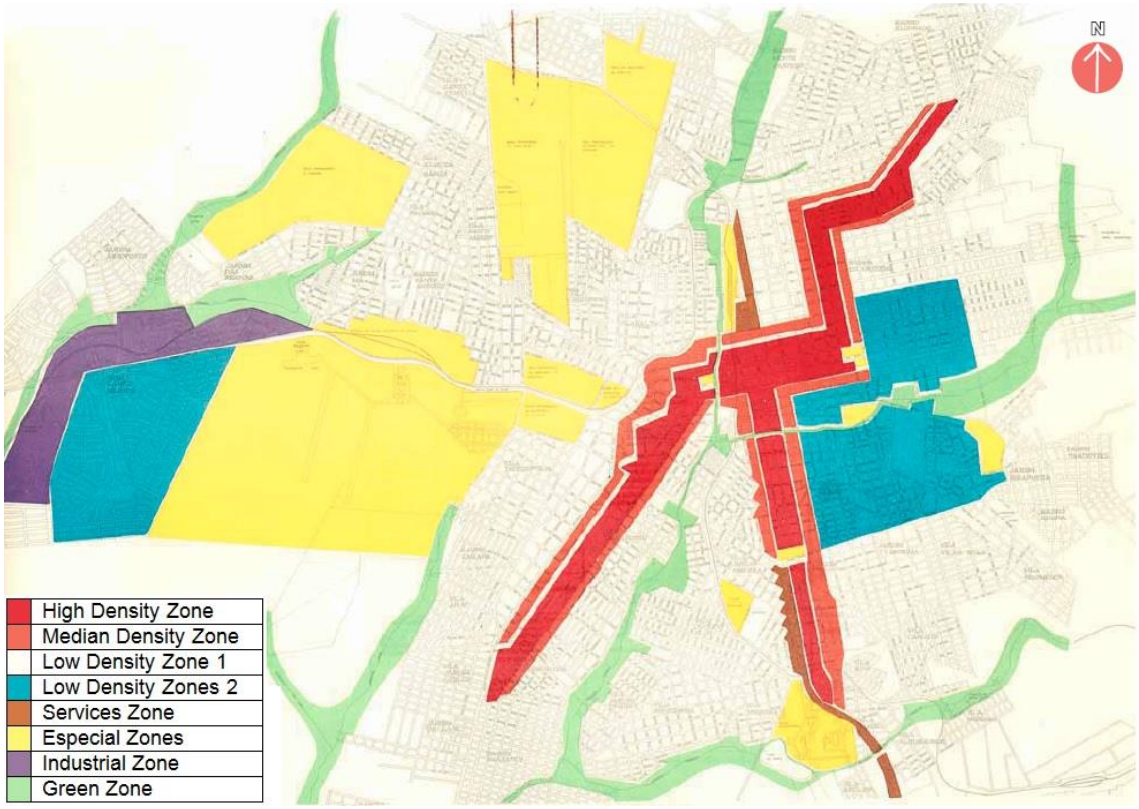


Figure 2-56 – Map of the Plan of Urban Complementation of Campo Grande, 1979.

Source: Adapted from Lerner (1978).

Table 2-3 – Permissions of use in the zones of the Plan of Urban Complementation of Campo Grande, 1979.

Urban Zone	Permitted Use	Permissible Use
High Density	Multifamily Housing Single-family Housing Retail Supermarket Restaurants, bakeries, bars Private services Banks Office buildings Radio and TV station buildings Hotels Theatres, cinemas, auditorium Temples	Public services Health centres and hospitals Schools and universities Recreational Clubs Gas station Automobile workshops Manufacture activities
Medium Density	Multifamily Housing Single-family Housing Retail Restaurants, bakeries, bars Private services Small hotels Gas station	Public services Health centres and hospitals Schools and universities Recreational Clubs Gas station Automobile workshops Manufacture activities
Low Density 1	Single-family detached housing Single-family terraced housing Light retail Restaurants, bakeries, bars Gas station Recreational Clubs Places for meeting	Small workshops Gas station Automobile workshops Health centres and hospitals Restaurants Assistance offices
Low Density 2	Single-family detached housing Schools Temples	Recreational clubs Light retail Home private services

Source: Adapted from Lerner (1978).

In relation to the issue about housing for lower income, the Plan stated that the appropriate location of houses for families with lower income is an essential matter for both the families and the city. Once it had analysed the context of Campo Grande, the Plan proposed the use of the urban gaps in the city along the roads for the development of social housing. As these areas normally have suitable infrastructure, it would be beneficial for the government as it would not be necessary to spend with the construction of additional infrastructure only for the social housing developments. It would also have advantages for the dwellers, as they would have easier access to the city centre. The benefit for the city is that this measure would settle an orderly growth for the city and minimise the land speculation. The Plan for Urban Complementation established specific areas for the development of social

housing and estimated the number of housing units that could be developed in these areas and the number of people that could be housed. It was based in the analysis of the housing deficit of Campo Grande in that year and also the expected housing demand of the following 10 years (Lerner 1978). However, mainly for political reasons, the actions proposed in the plan were not effectively implemented in the city (Rezende 1987).

Once being consolidated as a capital, Campo Grande underwent an increase on its economy, immigration, and urban areas in the 1980s. Until the year of the creation of the state of Mato Grosso do Sul, Campo Grande had 60% of its population composed of people who were born in that city. Nevertheless, it decreased to 40% in the following decade, as 57% was composed of people from other parts of Mato Grosso do Sul and from other states of the country, and 3% of people from other nations. This illustrates the impressive number of immigrants that Campo Grande, which had 292,000 inhabitants in 1980, received in that decade (Campo Grande 2013). It led to the increase of urban problems, such as the demands for housing, land speculation, public transport, and infrastructure. In order to manage the proposals for the solution of these problems, the Municipal Council for the Development and Urbanisation and the Unit for Urban Planning were created in 1987. The Council was responsible to analyse the urban issues, while the Unit for Urban Planning had the role of managing to solve the urban problems of the city. With these municipal departments, a new Regulation for Use of Land was created in 1988. It has divided the city in seven regions, according to its geographical, economic, and social aspects (see Figure 2-57). The zoning system has remained, dividing the city in Institutional, Commercial, Industrial, Transition, and Residential. Each zone has been divided in subzones, in order to create distinct rules for construction for each area of the city. The subzones were later named Z1 to Z12. Besides the Zones, it has also created “Corridors,” which are roads of the city that would have their specific rules for use of land, named C1 to C6 (see Figure 2-58).

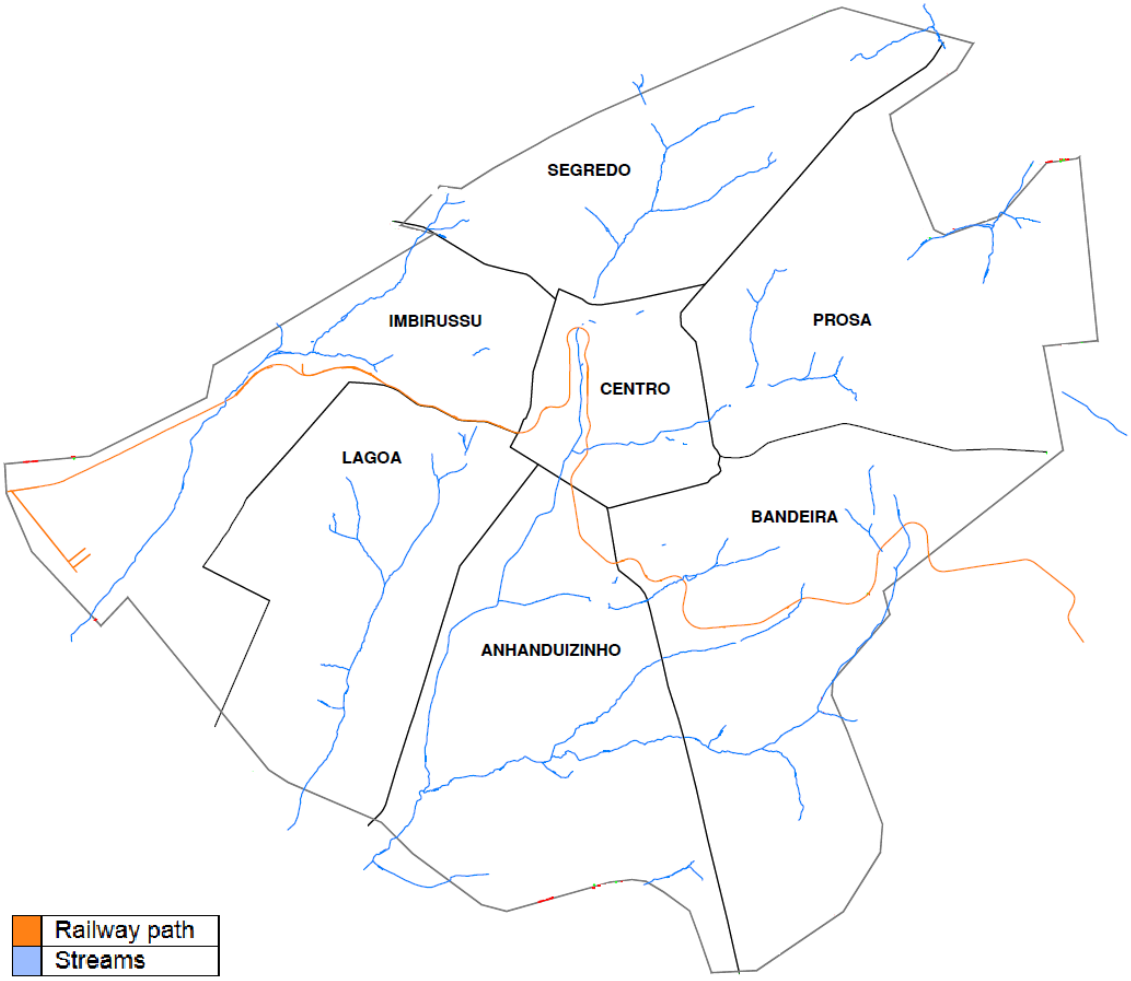


Figure 2-57 – Map of Campo Grande with its urban regions.

Source: Available at http://www.capital.ms.gov.br/planurb/downloads/ (Accessed: 30th June 2017).

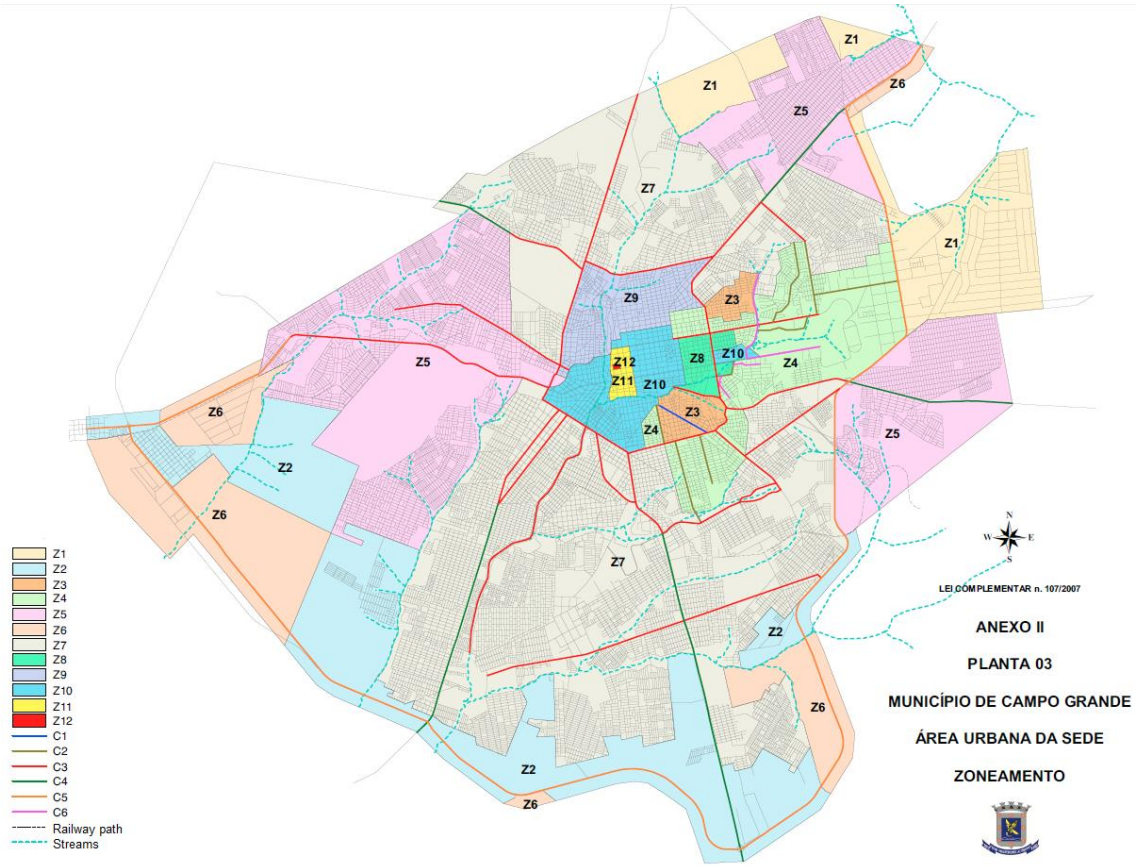


Figure 2-58 – Zoning Plan of Use of Land of Campo Grande.
Source: Adapted from Campo Grande. Available at: http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10 (Assessed: 12th May 2014).

In the first years of the 1990s, Campo Grande achieved over 500,000 inhabitants. Despite having been previously pointed as one the urban problems of the city by the municipal authorities, the urban gaps increased, and led to the city being expanded. By that time, the vacant and unoccupied areas represented 43% of the city. With a density of 15 inhabitants/km^2, Campo Grande could house 20 times its population without the necessity of increasing its area. It affected mainly the people who lived in the periphery, composed mostly by lower income families. This was amongst the problems that led to the creation of the Municipal Development Plan in 1995. The Plan has since then become the main instrument of city council for the management of the urban issues, defining guidelines for the urban development of the city. It establishes strategies for the resolution of the housing matters, such as the creation of programmes for the development of social housing, and the designation of municipal organs to coordinate the programmes. It also states the minimum requirements for the families to be allowed to apply for the social housing programmes (Campo Grande 2006). The Plan has undergone adaptations over the

years such as the inclusion of the Zones of Social Interest, as a response to the federal law of the City Statute (see Figure 2-59).

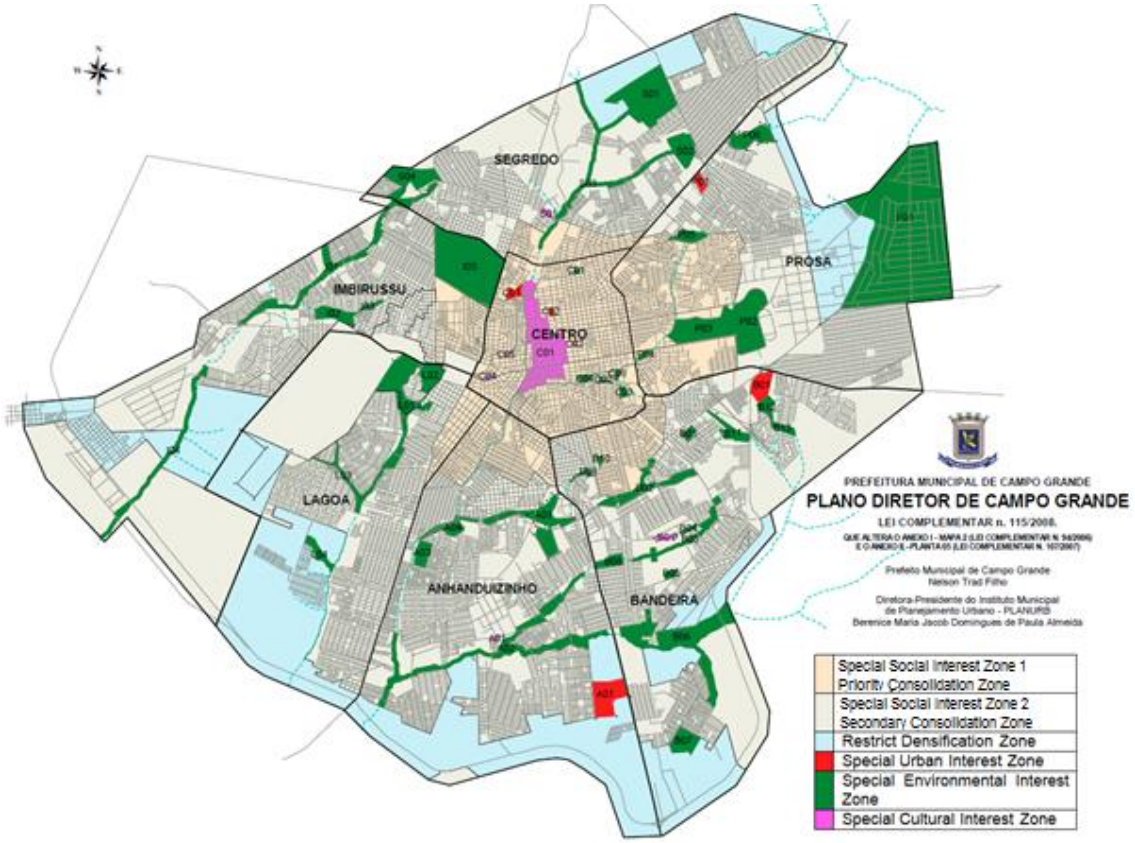


Figure 2-59 – Municipal Development Plan of Campo Grande.
Source: Adapted from Campo Grande. Available at: http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10 (Assessed: 12th May 2014).

2.2.3 The Development of Social Housing in the City of Campo Grande

The social housing programmes have been developed according to the housing deficit of the city, which is around 35,000 homes. The families with an income of up to three times the minimum wage represent 80% of the housing shortage. That income is the limit for the families to apply for social housing programmes. The city council divided the social housing schemes in two: one is focused on those families who applied for the social housing programmes and meet the requirements for that, such as having an income of up to three times the minimum wage; and the other is for those families who were forced by the authorities to leave their homes as they lived in irregular settlements. People from both types of programme usually move to the same social housing developments (Campo Grande 2010). The fund for these schemes varies, as they can be funded by the federal, state, and municipal governments together or separately. Nevertheless, the social housing

developments are planned and managed by the municipal authorities. The location of these housing estates is also chosen by the city council. Despite usually having the basic urban infrastructure, such as water and electricity supply, they are located in the periphery of the cities, where the land has a lower cost in comparison to the areas nearer the city centre (see Figure 2-60).

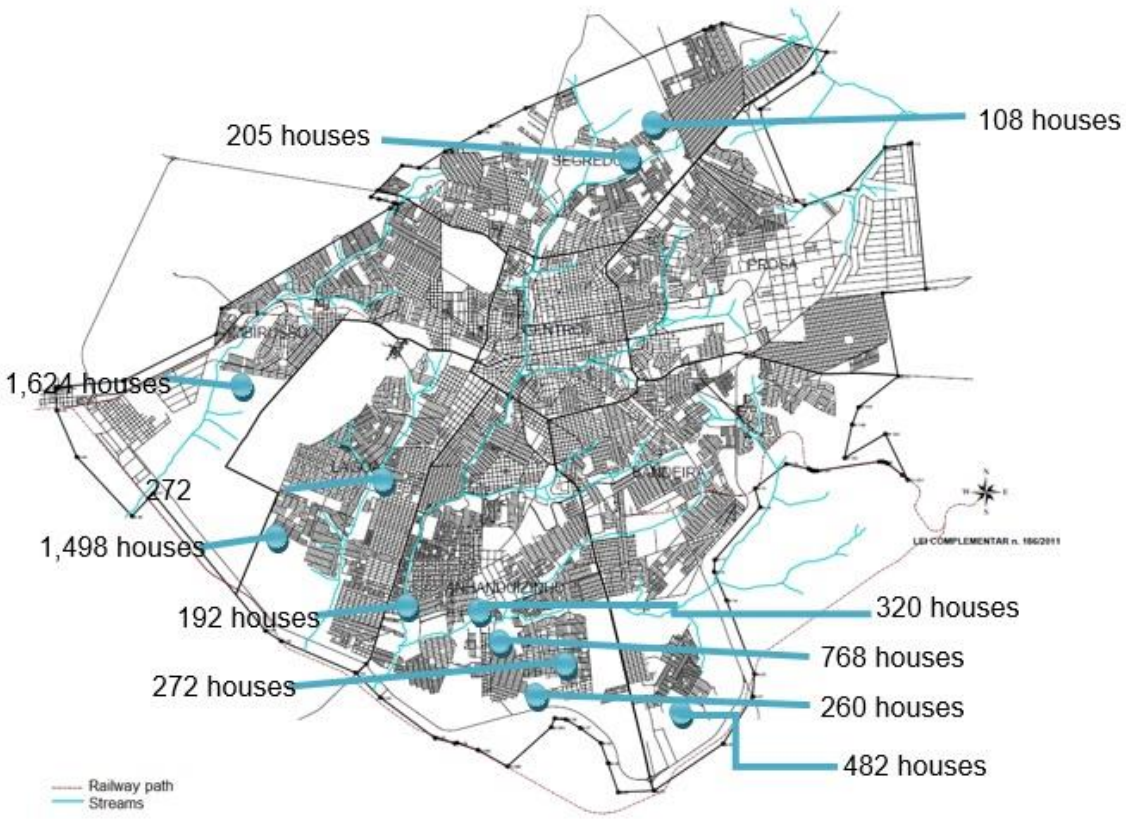


Figure 2-60 – Map of social housing developments to be concluded in 2014.
Source: Adapted from Campo Grande (2010).

Through an analysis of the map above (Figure 2-60) and using the map of the Municipal Development Plan (Figure 2-59) as a reference, it is possible to identify that the location of the social housing developments has not been following the guidelines of the Municipal Development Plan. Even though there are vacant areas on the Zone of Social Interest, the social housing estates have been developed in more peripheral areas, some of them even in the Zone of Restrict Densification. Besides being composed only of houses, these developments are usually located in areas without the services that the community needs. In order to satisfy the needs of their communities, residents build bars, restaurants, and other businesses on their own, without licenses from the city council (see Figure 2-61).

Figure 2-61 – Bar in a unit of social housing in Campo Grande, after approximately three years.
Source: Google Earth.

As previously mentioned, the development of social housing not only has the aim of providing low income people with house, but also improving the economy. It also aims on decreasing the housing deficit, as the housing deficit is the tool used by the government to measure the efficiency of its actions to solve the housing problems. Therefore, the number of units of social housing has a key role for the government, as it can solve the main governmental concerns in relation to the housing issues, which are improving the economy through the development of the construction industry, and presenting a decrease of the housing deficit. This affects the quality of the social housing developments. Despite the technical standard for the architectural design of social housing created by the government, which establishes minimum ideal conditions for the houses, the limited budget, and the aim of producing a high number of units have led to a low quality of architectural solutions for the houses. There is a standardisation of the design for the houses, aiming to achieve the lowest possible cost, which is not suitable for the needs of every family who lives in those places. In order to adapt the houses to their needs, the dwellers make alterations to the buildings, often resulting in poor constructions (Reis & Lay 2002; Mayer & Silveira Neto 2006). Through analysis of the facades of the units of social housing, it is possible to identify some of those consequences (see Figure 2-62 and Figure 2-63).

Figure 2-62 – Social housing development in Campo Grande, just after built.
Source: Campo Grande. Available at: http://www.abc.habitacao.org.br/wp-content/uploads/2012/10/AGEHAB-MS.pdf (accessed: 10th October 2013).

Figure 2-63 – The same social housing development present in the Figure 2-59, after approximately three years.
Source: Google Earth.

2.4 Conclusion

This study has brought an understanding on what form housing for lower income people has been developed around in Brazil. Through this study, it is possible to conclude that the cultural and regional distinctiveness have not been amongst the main concerns in the development of these houses over the years. When the Portuguese arrived in Brazil, they imposed their mode of developing houses and communities, without considering the culture of the inhabitants that existed there. Houses and cities were produced over the country based on the Portuguese architectural and urban design principles during the colonial period, in order to provide the colony with a Portuguese appearance. Since that era, it is notable that people were expected to live in houses that were designed based on political and

economic aspects, rather than on what people desired. This situation has been present in the different periods that the country has been undergoing.

The concern of the society with the housing problems, such as the housing stock and the type of house where the lower income people were living, has emerged in the cities in the first decades that succeeded the proclamation of republic. They made clear that maintaining the liberal policy that predominated in the country by that time would lead to these problems to become aggravated. That era also proved that the housing matters should not be discussed only by sanitarians and doctors as it was during that period. Therefore, since the following eras the government has adopted an interventionist policy towards the housing issues.

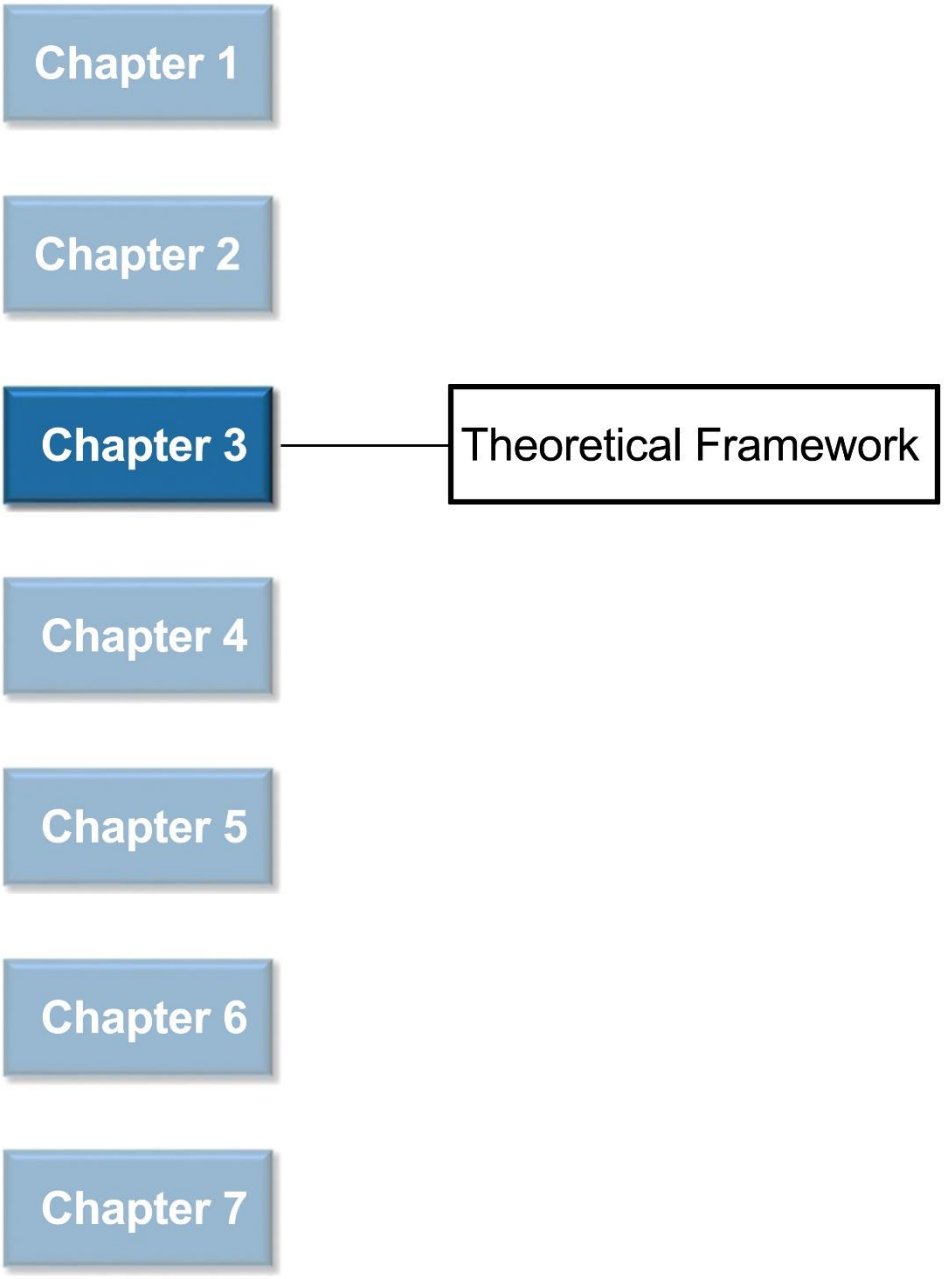
As the first decade that the government had become more interventionist was also the decade when modernism was introduced in Brazil, that movement was influential in the governmental housing production of the country. There was an intention from the government in making the country modernises. It led to an interest in investing in architecture to provide the country with a modern appearance. The current Brazilian capital, developed in that period, is a sample that can clearly illustrate this situation. This governmental concern with architecture in that era reflected in the way the housing developed offered by the government were being designed. Those developments followed the principles proposed by the modernist architecture. The main principles were to develop houses with low cost, through a standardisation process. Nevertheless, the study on the development of housing for lower income people over this period showed that not only achieving low cost of housing production and having a modern architectural style were the concerns, but there was also a belief that the architecture of a house could influence its dwellers' behaviours. The nation was willing not only to have modern buildings and cities, but also modern citizens. The government and the wealthy society, which included many of the renowned modernist Brazilian architects, believed that the people with lower income should behave according to what was considered ideal by the wealthy societies. Therefore, the housing developments were designed with the attempt of influencing their dwellers' behaviours. Nevertheless, through what has been investigated in this study, it was found that people changed their homes, instead of changing their habits. It showed that the planners should design housing according to the residents' cultures and needs, rather than imposing new standards to them.

Research on the social housing production during the military dictatorship was also carried out. It was possible to conclude that, in that era, the governmental housing programmes had no longer any social concerns, but mainly economic purposes. The social housing production in that period was related to the aim of the government to improve the economy through the construction industry. Therefore, the architectural features of those houses were no longer a priority for the government, as its main concern was to build the largest possible number of houses. Consequently, social housing developments were built throughout the country with low quality.

The period that followed the military dictatorship was marked by popular movements claiming governmental actions towards the land and housing matters in the country. As a response, the government created regulations in order to make the cities more just and democratic for the lower income people. Nevertheless, the latest housing plans created by the government has presented strong similarity with the housing programmes developed during the military dictatorship. This similarity is due to the economic purposes of the current housing plans, as the government aims to improve the economy through the housing production. These plans have been efficient in the task of decreasing the housing deficit, but have presented a questionable quality of housing. The social housing developments have been built throughout the country without considering the cultural and regional distinctiveness of the areas where they have been placed. With the growing number of these developments, they have been drawing new skylines over the cities. As they have basically the same architectural design in all the regions where they are constructed, they do not present any local identity. Besides that, the fact that these housing developments are composed only of houses also shows a lack of concern on the needs of people who are supposed to live there.

In order to understand the context of the developments of social housing in the city of Campo Grande, a study about that area has been developed. The layout that the urban fabric of the city has been set to has impacted on the location where the social housing developments have been settled. The growth of the urban fabric of Campo Grande has not been proportional to the increase of its population and led to the formation of urban gaps in the city. Land subdivisions have arisen in the periphery, in areas disconnected to the main urban core. Consequently, the price of the land near the city centre has increased, making it unaffordable for most of the low-income families. With a limited budget, the areas far from the city centre have been the

option chosen by the municipal authorities for the development of social housing, as they present lower price. Therefore, besides being composed only of houses, and not having essential services that a community needs, these housing developments are located far from the city centre. Therefore, the dwellers try to find solutions to improve their neighbourhood on their own, redrawing the characteristics of the housing estates where they live.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Chapter 2
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Theoretical Framework
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Chapter 7

Chapter 3: Theoretical Framework

This chapter aims to establish the theoretical basis for this work. It presents the interpretations, meanings, and characteristics of both community and home. It also discusses the importance of forming communities and creating homes, along with the strategies through which communities and homes can be developed.

3.1 Principles of Community

There is a rich variety of literature discussing the term ‘community.’ The form in which this theme is approached varies according to the discipline that is dealing with it. Crow and Graham (1994) give an example comparing the research led by the anthropologists and historians about this subject. Whilst anthropologists study the importance of symbolic boundaries around communities (Cohen 1985), historians focus on how communities are created and sustained. Even within specific fields, such as sociology, the definition of the term community varies from one sociologist to another. There is an agreement amongst scholars, such as: Bell & Newby 1971, Brint 2001, Crow & Graham 1994, Hillery 1955, König 1968, Lee & Newby 1983, MacQueen et al. 2001; who deal with this theme that the conceptualisation of this subject remains open to multiple interpretations. The meanings proposed by social scientists may be ambiguous and contradict each other, or they can be narrowly similar, but still not identical (König 1968). The sociologists suggest different branches to study community and to present their ideas, such as through the dichotomy between the concepts of community and society. They also propose other issues that can form a community and have impacts on the quality of life of its members, such as locality, size, common bonds, social interaction, sentiment of attachment, social variables, and boundaries. Moreover, there are approaches about whether the feeling of belonging to a community can be artificially created, the importance to create them, and what the possible mechanisms to reach that sentiment are.

3.1.1 Community and Society

The polarisation between the meanings of community and society has been one of the pioneering ideas used by sociologists in the study of community. This principle is defended by pioneers such as Parsons and Shils (1951), Tonnies (1887), and Weber (1921) (1958). It brings the idea that community is formed by small groups or localities, while society is based on large numbers of people or big geographical

areas. Besides the difference of scale, they also have opposite types of locations. For example, in the case of the urban areas, while society is usually near the centre, community may be distant. Tonnies (1887) suggests that the differences of size, number of members, and proximity to the centres bring direct implications to various aspects of both community and society. According to his ideas, community is related to homogeneity and feeling of identity. It is sentimental while society is interpersonal and rational. Community presents homogenous cultural characteristics and its people can have attachments to place and people, and may develop loyalty for them. Community is associated with concentrated ties, frequent interaction, common beliefs, and ways of life, familiarity, and emotional bonds. Society, on the other hand, is related to dispersed ties and less frequent interaction. In society, the duties of an individual are achieved by what they have done, rather than given for who they are. In community, it is the opposite, as the duties will be given to members based on who they are, rather than what they have done. These aspects can affect the chances of an individual to achieve status and wealth in life.

The idea of a narrow relationship between the small size of a community and the implications it can bring, such as cultural homogeneity, is debatable. As aforementioned, Tonnies' (1887) concept of community is associated with small scale; a small number of people, familiarity, common beliefs, and concentrated bonds. However, Brint (2001) claims that belonging to a group of a small number of people, or living in a small village, does not necessarily imply the development of common ties and common ways of life. Based on this principle, Brint (2001) suggests that Durkheim's (1897) approach is the most important alternative to Tonnies' (1957) views of community. Durkheim (1897) sees 'community not as a social structure or physical entity but as a set of variable properties of human interaction that could be found not only among tradition-bound peasants of small villages but also among the most sophisticated denizens of modern cities' (Brint, 2001, p. 3). Six properties of community relations could be extracted from his and his followers' ideas, where four are classified as structural variables and two as cultural variables. The structural variables are: dense and demanding social ties, social attachments to and involvements in institutions, ritual occasions, and small group size; while the cultural variables are: perceptions of similarity with the physical characteristics, expressive style, way of life, or historical experience of others and common beliefs in an idea, system, a moral order, an institution, or a group. In relation to the interpretations of the first structural variable, it was found that dense

social ties are usually related to conformity to the dominant morality in a society (Homans 1950; Becker et al. 1957) and to good mental and physical health (Wolf & Bruhn 1993). Dense and demanding ties are usually associated with the benefits of social support networks (Fuchs 1983). It is shown by interpretations of the second of structural variable, composed by active attachments to and involvement in institutions, which can be exemplified by schools, churches, voluntary associations, and even labour markets, that this variable was developed to have an impact on trust in others (Almond & Verba 1963; Putnam 1993). While absence of bonds to community institutions can be associated with delinquency (Hirschi 1969), participation in community institutions is often associated with efficacious relations with authorities (Laureau 1987) and with the development of civic skills (Verba et al. 1995). Frequent presence in ritual occasions, which is the third structural variable, is associated with a form of strengthening the sense of identity in a community (Warner & Lunt 1941; Warner 1959; Mumford 1970; Collins 1988). The fourth and last variable is size. The judgment whether smaller or bigger size is the optimum depends on the goals that are trying to be reached. For instance, bigger sizes are better where efficiency and variety are important. On the other hand, in the cases where relationships are important, such as in the human service field, then smaller scale is more likely to be successful. Perceptions of similarity with the physical characteristics, expressive style, way of life, or historical experience of others, which is one of the cultural variables, is related to the influence of the habits, choices, and behaviour of people from and into their environments (Brint 2001), such as their political views (Brint & Kelley 1993; Brint 1994) and consumption choices (Bourdieu 1984). Beliefs, the other cultural variable, can also be influential. However, it can influence independently of interests and interaction (Brint, 2001). The importance of this approach developed by Durkheim (1897) is in proposing a more comprehensive and detailed form of investigating the concept of community, based on its complexities. The diagram below provides a summary of the polarisation of ideas between the aforementioned pioneers, and of the dichotomy between the concept of community and society (see Figure 3-1).

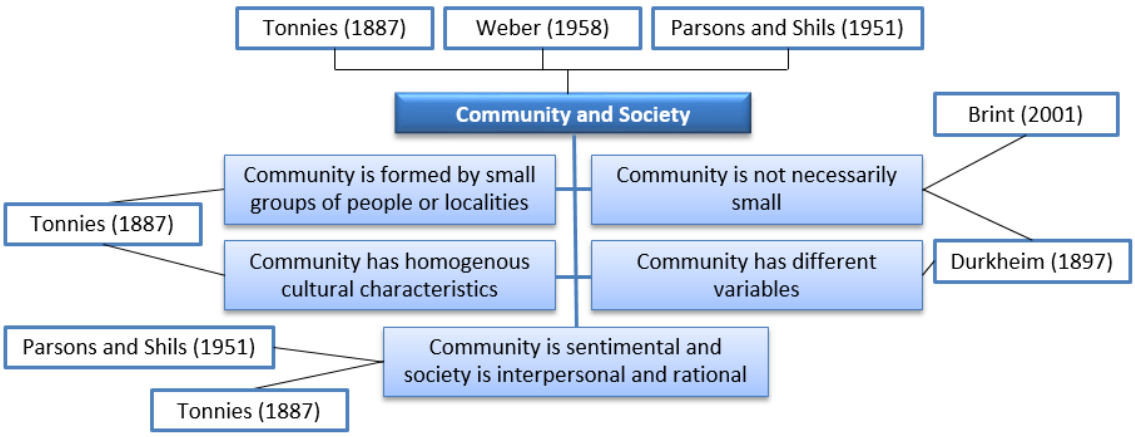


Figure 3-1 – Diagram of views of sociologists who relate community to society.

3.1.2 Locality and Size

The existence of a common geographical area is emphasised by scholars within the sociology field as a possible element for the formation of community. Mention of the presence of a common place can be found in the studies of community by a number of pioneers, including Cohen (1985), Fischer (1977), Gusfield (1975), Hillery (1955), Hunter (1975), Kaufman (1959), Sussman (1959), Tonnies (1887), Warren (1971), Wellman (1979), and Willmott (1986). While some authors, such as Brint (2001), Crow and Allan (1994), Gusfield (1975), König (1968), Lee & Newby (1983), Riger & Lavrakas (1981), Wellman (1979), and Willmott (1986), consider locality as a possible basis for the formation of community, others such as Sussman (1959), and Warren (1971), argue that common place is a necessary element on the composition of community. Sussman (1959) also shares with Kaufman (1959), and Tonnies (1887) the notion that a community is formed by a small-scale locality, which can be exemplified by a village (see Figure 3-2).

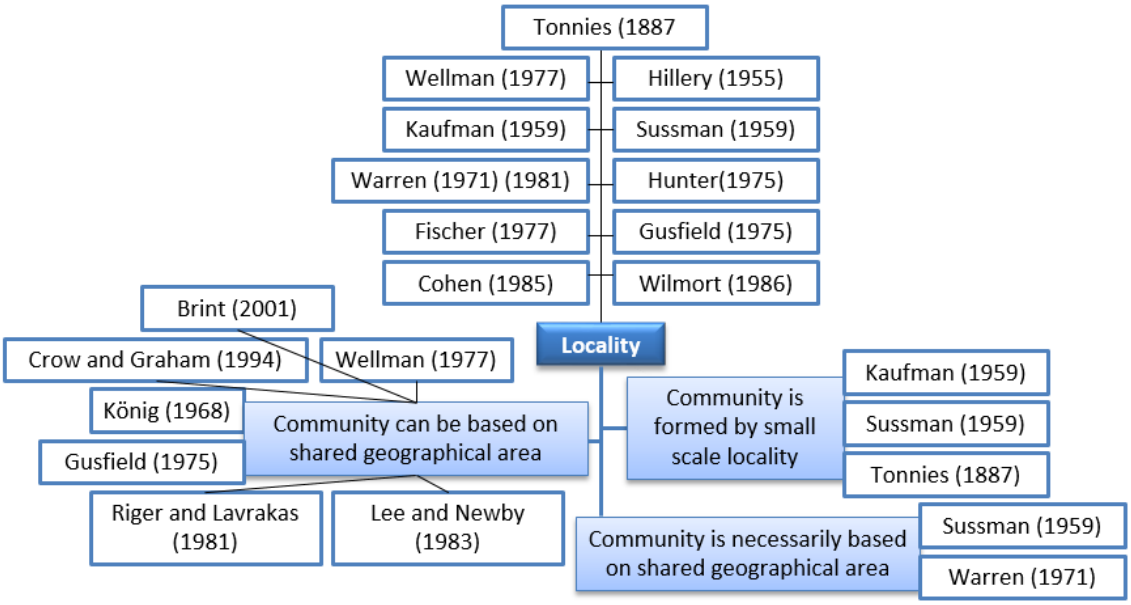


Figure 3-2 – Diagram of views of sociologists who relate community to locality.

This concept is related to a simplified vision of community, with the belief that the members of a community will necessarily have social interaction with each other (Kaufman, 1959; Sussman, 1959; Tonnies, 1887) and present homogenous cultural characteristics (Weber, 1921; Tonnies, 1887). However, as previously presented, this line of development in the concept of community in sociology has been contested by other authors for being considered a 'romanticising' (Brint, 2001, p. 2) form of analysing communities. Therefore, community would not necessarily be small, as a village, but could also be composed of a large-scale locality, such as a city (Durkheim. 1897; König, 1968) (see Figure 3-3).

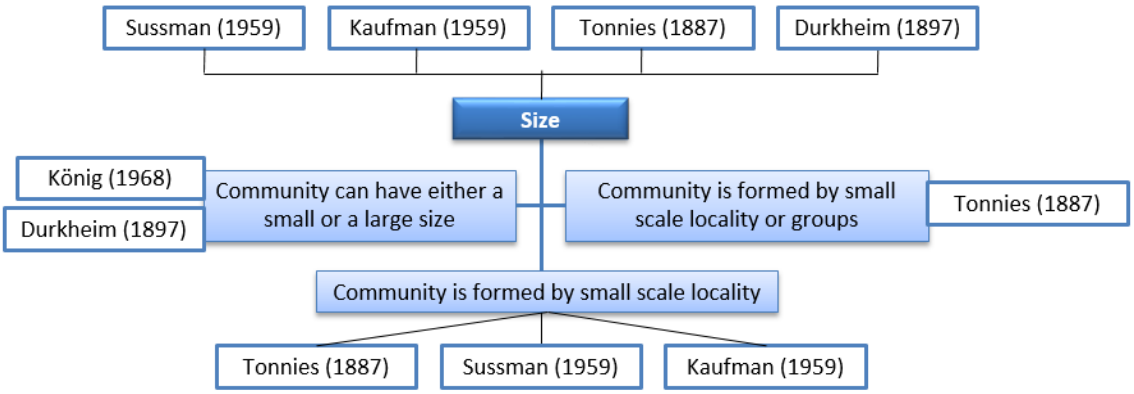


Figure 3-3 – Diagram of views of sociologists who relate community to size.

Neighbourhood can be considered as a type of community based on a common geographical area (Ahlbrant Jr. & Cunningham 1979). It meets the requirements to be considered a community as defended by authors such as Warren (1971), who states that community is the set of social units combined with systems that has the locality as a reference, and perform major social functions. It can also be considered as a community through the interpretations presented by some of the previously

mentioned authors, such as Bell & Newby (1971), Cohen (1985), Crow and Graham (1994), König (1968), Suttles (1972), Tonnies (1887), and Willmott (1986), who affirm, amongst other characteristics, that a community can be basically formed by people who have a place with physical or symbolic boundaries in common. Galster (2001) states that like the term community, neighbourhood also contains a range of different interpretations for its meaning. He presents a similar but not identical view to authors such as Golab (1982), Morris & Hess (1975), Schoenberg (1979), & Warren (1981), who have as common vision the idea that neighbourhood is composed by people who share the same locality and, according to Hallman (1984, p. 13), 'within a larger urban area, where people inhabit dwellings and interact socially'.

A neighbourhood can be divided into different levels (Galster 2001; Kearns & Parkinson 2001; Suttles 1972), based on the relationship between the degrees of its geographic areas and its social systems and their interactions. Kearns and Parkinson (2001) divide it into three different scales (see Figure 3-4). The first is labelled 'home area,' which is the area just a few minutes' walk from a resident's house. It presents similarities with Suttles' (1972) first scale of neighbourhood, which Galster (2001, p. 2114) describes as 'the area over which children could be permitted to play without supervision. This is the scale where connection and attachment amongst the residents are stronger (Brower 1996; Kearns & Parkinson 2001). The second level is named locality, which is about residential activities, social status, and position. The third level is urban district or region, which is related to landscape of social and economic purposes. In the urban region, there is a range of social and economic opportunities, such as employment, leisure activities, and family connection. Each person can have distinct levels of engagement to those opportunities, and it defines the relevance that the home area has for the individual. For example, people who are more engaged with the opportunities offered by the urban region, tend to consider the home area less relevant to their lives (Kearns and Parkinson, 2001).

Scale	Predominant function	Mechanism(s)
Home area	Psycho-social benefits (for example, identity; belonging)	Familiarity Community
Locality	Residential activities Social status and position	Planning Service provision Housing market
Urban district or region	Landscape of social and economic opportunities	Employment connections Leisure interests Social networks

Figure 3-4 – Table of Kearns and Parkinson's (2001) scales of neighbourhood.

Based on Lancaster's (1966) concepts, Galster (2001) defines neighbourhood as a spatially based bundle of demographic, infrastructural, class status, tax/public services, environmental, proximity, political, social-interactive, sentimental and structural - i.e. residential and non-residential buildings - characteristics. Although every neighbourhood should present these attributes, it does not mean that they would be homogenous within a specific neighbourhood. Some of these features, e.g. infrastructure, environment, and structure, are combined with the locality while others are brought by the residents based on their own characteristics to the space (Galster, 2001).

The scale of the attributes of a neighbourhood and the form in which they are spread over an area vary according to their features. Although studies such as the boundary projects developed in Pittsburgh (Ahlbrandt Jr. et al. 1977) and in Denver (Jones 1973), point to a perception and identification by the residents of the boundaries of their neighbourhood (Ahlbrant Jr. & Cunningham 1979), there are not boundaries that coincide precisely with each type of attribute of a neighbourhood, and these features can vary independently from each other (Galster 2001; Lupton 2003a). For instance, the structural characteristics of residential and non-residential buildings can change considerably within a few metres of distance, while the quality of air can be basically the same across entire areas of different neighbourhoods. The durability of the attributes also varies from one to another and their length of duration can affect how desirable the neighbourhood will appear for its residents or prospective consumers. For example, while topographical characteristics are permanent, tax and public services can change within one year. As the longevity of these attributes influences the willingness of people to live in those neighbourhoods, it consequently influences the price of the properties. Therefore, some attributes such as the ones aforementioned can be priced; others, however, such as social-interaction, cannot. Therefore, it is the case that the assessment of the value of an

area can vary according to who is assessing it. For instance, the assessment of a long-term resident of the value of his or her property is likely to diverge from the evaluation of an investor or a prospective resident (Galster, 2001). As well as these attributes, there are also the consumers who can be in some cases simultaneously producers, and thus have a substantial role in the type of neighbourhood that will be formed (Galster, 2001; Lupton, 2003a). Households, for instance, are consumers of a neighbourhood, as they choose to reside it, but they are also producers as his or her occupancy influences features of that location, such as demographic characteristics and social networks (Galster, 2001). In spite of the fact that all these attributes are not coupled to each other, they can affect one another. Lupton (2003a) divides them in physical, such as the buildings and the topography, and social attributes, such as sentiment of attachment and social interaction, and alleges that the physical features can have an impact on the social characteristics of the neighbourhood. He also adds that the social relations in a neighbourhood can influence the personal outcomes of an individual, such as employment and health.

3.1.3 Common Bonds

Although the word community is often associated with locality, the place, and the capacity to support particular types of social relationship are not straightforward in relation (Crow and Graham, 1994). Common location or common interests, attachments, beliefs, values, or other shared experiences that people have between each other can all generate a sense of belonging and form the basis for the structure of a community (Brint, 2001; Crow and Graham, 1994). In modern society, with easier mobility, communities based on interests, independent of location, are even more usual than the ones based on locality (Durkheim 1893; Riger & Lavrakas 1981; Wellman 1979). It suggests a division between communities based on geographical area and common bonds, which is another branch of the studies of community adopted by sociologists. This division has two of the main aspects identified by Hillery (1955) in his study about the definition of community: the presence of a common territory and common ties.

Hillery (1955) investigated the distinct definitions given by scholars to the term community and 94 were identified. He presented his conclusion in a table (see Figure 3-5). The ideas he presented in the article ‘Definitions of Community: Areas of Agreement’ have become the basis for studies by scholars who approach the theme of community within the social sciences field. In his research, it was found

that there are 16 concepts formed out of the 94 definitions of community. Although contradictions amongst the 94 different definitions can be detected, there is no evidence that any author denies geographic area as a possible element of community. Another unanimous point identified is that all the definitions deal with people, and 92 out of the 94 deal with social interaction. Besides the presence of a geographical area, formation by people, and social interaction, he also notes that the presence of common bonds is emphasised by scholars as a crucial element in the composition of a community. Therefore, it was discovered that a community must contain at least one of these three items: local area, social interaction, or common ties.

TABLE 1. A CLASSIFICATION OF SELECTED DEFINITIONS OF COMMUNITY ACCORDING TO CONTENT

Distinguishing ideas or elements mentioned in the definitions*	Number of definitions	Authors**
I. *Generic Community:*		
A. Social interaction		
1. Geographic area		
a. Self-sufficiency	8	Wilson; Hobhouse, Wheeler, & Ginsberg; Sanderson; Zimmerman; Fairchild; Davis; Landis; Hawley
b. Common life	9	MacIver and MacIver & Page; Morse; Park & Burgess; Kinneman; Snedden; McClenahan; Zorbaugh; Wirth; J. Bernard
(1) Kinship	2	Tönnies; Heberle
c. Consciousness of kind	7	Jackson; Gillette; Brunner; Lindeman; Cook; Nelson; Anderson & Hill
d. Possession of common ends, norms, means	20	Ward; Hieronymus; North; Dunn; Pirenne; Lundquist & Carver; Wood; Lundquist & Moore; Burr; Steiner; North; Osburn & Neumeyer; Gettys; Ginsberg; Panunzio; Hoffsommer & Pryor; Homans; Hiller; Bennett & Tumin; Hillman
e. Collection of institutions	2	Park; Ogburn & Nimkoff
f. Locality group	5	Galpin; Burgess; Rich; Sanders & Ensminger; Warner
g. Individuality	2	Howe; McKenzie
2. Presence of some common characteristic, other than area		
a. Self-sufficiency	1	Butterfield
b. Common life	3	Small; Sims; Park
c. Consciousness of kind	5	Cooley; Cole; Diffendorfer; Allport; Hayes
d. Possession of common ends, norms, means	5	Russell; Pettit; Panunzio; Morgan; J. & J. Ogden
3. Social system	1	Hill & Whiting
4. Individuality	3	Hart; Liao; Bews
5. Totality of attitudes	1	Fairchild
6. Process	2	Follett; Case
B. Ecological Relationships	3	McKenzie; Hughes; Hollingshead
II. *Rural Community:*		
A. Social Interaction		
1. Geographic area		
a. Self-sufficiency	1	Gillette
b. Common life	3	Henderson; McClenahan; Sorokin, Zimmerman, & Galpin
c. Consciousness of kind	3	Thompson; Ensminger; T. L. Smith
d. Possession of common ends, norms, means	3	Burr; Lantis; Sanderson
e. Locality group	5	Wilson; Galpin; Vogt; Sanderson; Kolb & Marshall
Total Definitions	94	

Figure 3-5 – Hillery's table of classification of selected definitions of community according to content.

Source: Hillery (1955).

Based on the principle that a community can be formed either by common ties or local area, Gusfield (1975) divided community in relational and territorial. A relational community does not depend on territory. Instead, it is formed by people who are connected by interests' independent of location. Relational communities can be, for example, a group of fans for a band (Brint, 2001) or people who are connected professionally (Brint 2001; McMillan & Chavis 1986). Territorial communities are formed by people who share a locality. It can be, for instance, a neighbourhood, a town, or a city. Brint (2001), based his study upon the dichotomy between geographic and relational communities, following the research by Gusfield (1975). He calls the latter choice-based communities, as they are formed by common bonds. The subtypes of communities are structured and related through a tree pattern (see Figure 3-6).

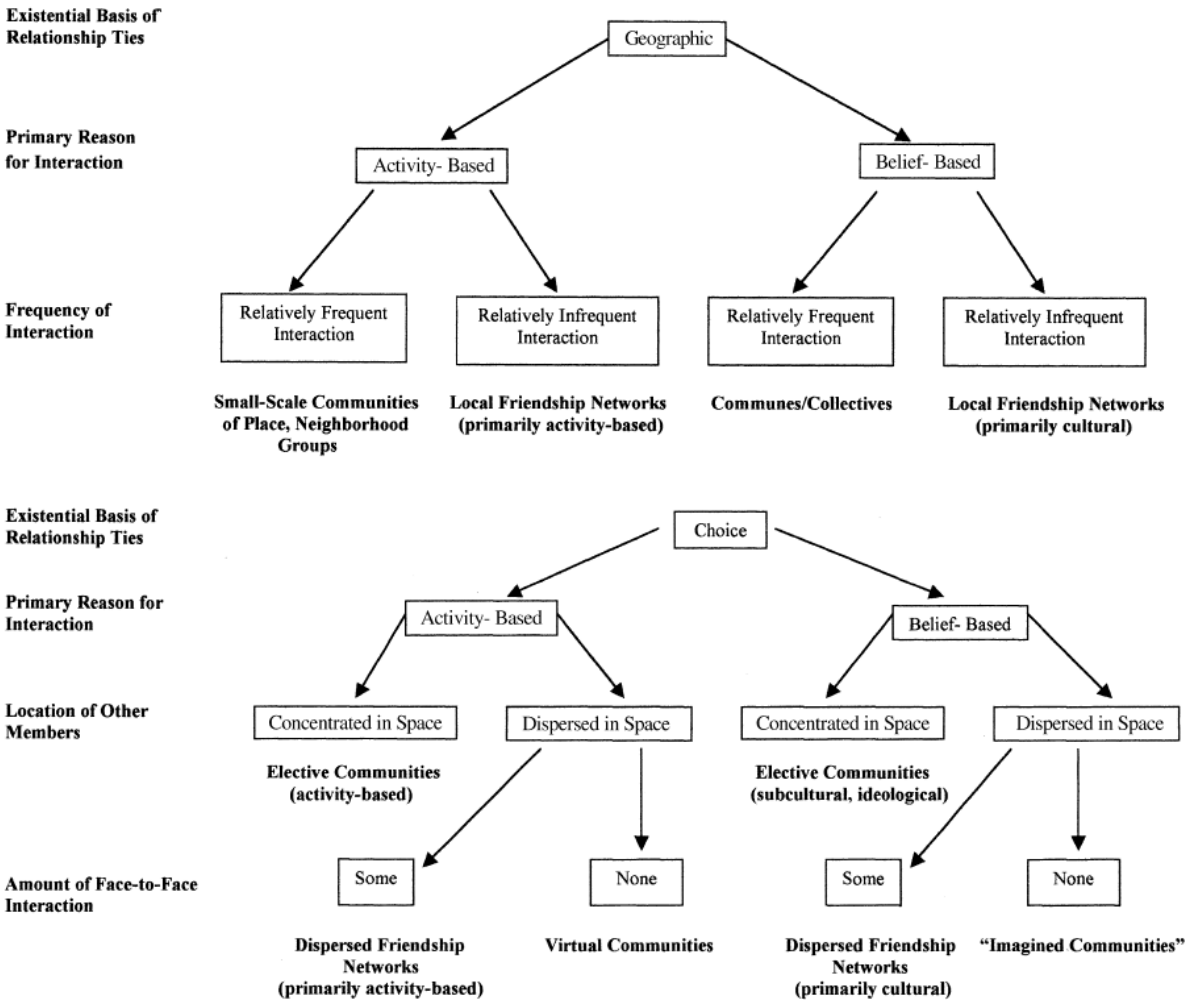


Figure 3-6 – Brint's community types.

Source: Brint (2001, p. 10).

As noted above, the Figure is divided in two main branches: geographic communities and choice-based communities. The second level of each category is

determined by the primary reason for interaction, and divides into activity-based and belief-based communities. The third and fourth levels are formed in both categories by ecological and motivational factors that influence rates of interaction. Within the geographic communities, the third level of the tree is defined by frequency of interaction. For choice-based communities, the third level is determined by the location of other members, as the amount of dispersal can influence the interaction of non-geographic communities, which are the communities that are not based on a common place. This division separates communities that are concentrated from those dispersed in space. The fourth for choice-based communities is defined by the amount of face-to-face interaction in the community, and divides those with some interaction from those that have none (Brint, 2001). This study demonstrates either being dispersed or concentrated can have an influence on the level of interaction.

As well as a territorial or geographic community and relational or choice-based community, Willmott (1986) suggests a third category, named community of attachment. The territorial community, which he also calls place community, relates to people who are linked by sharing geographical elements with each other, such as living in the same residence or neighbourhood. Willmott (1986) refers to the relational community as an interest community, defined by common interests and characteristics that might connect people, such as sharing the same religion and ethnic origin. These two types of community may overlap. For instance, people who belong to a territorial community may also present the same ethnic origin and religious belief. They may also form an interest community. However, the importance of distinguishing the types of community permits the knowledge that a community can be formed without its people sharing geographical aspects. The third category is related to people who recognise the common elements they share with each other, and this recognition brings them the feeling of identity. This feeling is named the spirit of a community or sense of community (Willmott, 1986). Thus, as the name suggests, this category is related to sentiments of group identity. Although it may coincide with the first two types, the distinction between them is that in the first two categories, people do not necessarily acknowledge the elements they have in common.

Crow and Allan (1994) compare Willmott's (1986) definitions of community with the interpretations presented by Lee and Newby (1983). Likewise, Willmott (1986), Lee

and Newby (1983) have also identified three strands on the conceptualisation of community. They name locality the category of community that is formed by geographical aspects. It is suggested, however, that people who live in the same place do not necessarily interact with each other. The second category is the case of people who live in the same locality which coincides to where they share common interests. It is similar to the overlap of the first two strands suggested by Willmott (1986). The term local social system, previously presented by Stacey (1969), is adopted for this category. Nevertheless, it does not mean that those people would have a sense of community, which justifies the creation of a third category. The third Lew and Newby's (1983) idea of community is similar to Willmott's (1986), where people have the sentiment of identity. They call this category communion.

The diagram below presents a summary of some of the main ideas identified about the relation between community and common bonds (see Figure 3-7).

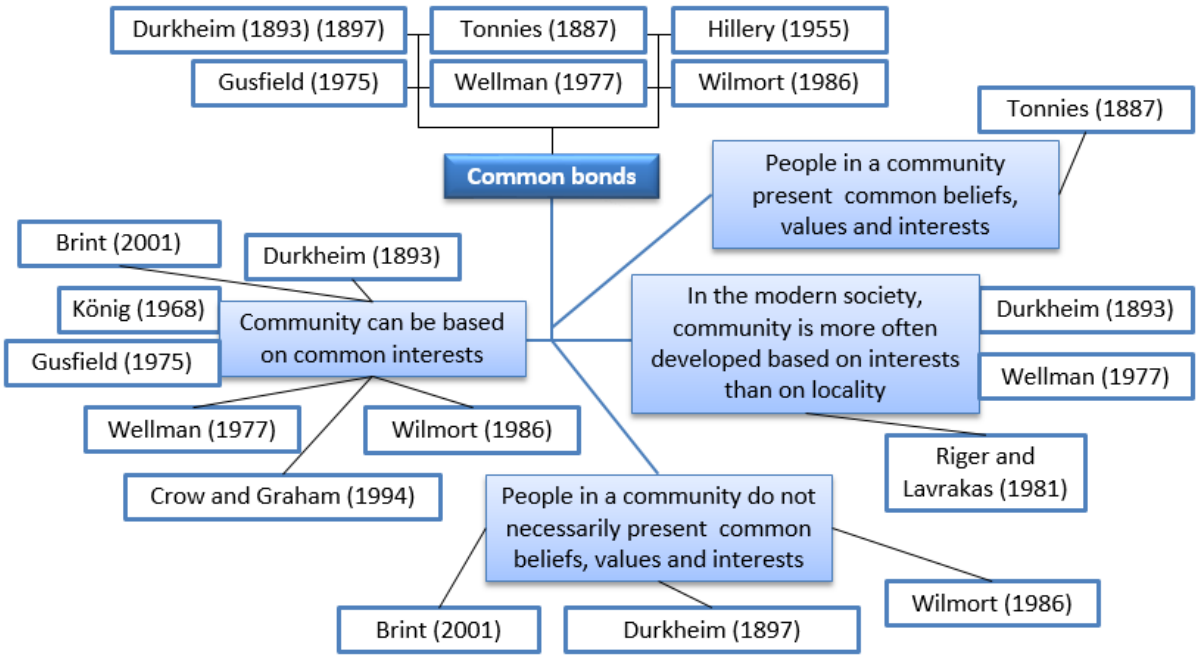


Figure 3-7 – Diagram of views of sociologists who relate community to common bonds.

3.1.4 Social Interaction and Sentiment of Attachment

In addition to shared locality and common bonds, social interaction is the other characteristic identified by Hillery (1955) in the composition of community and considered by scholars, such as Downs (1981), Durkheim (1897), Fischer (1977), Gusfield (1975), Kaufman (1959), Sussman (1959), Tonnies (1887), Wellman (1979) and Willmott (1986), as an important element for communities. Some investigators, such as Hallman (1984), Kaufman (1959), and Sussman (1959), state that community exists when people interact with each other, and have the aim of

meeting individual needs and achieving group goals. McMillan & Chavis (1986) add that this happens with groups that present the sentiment of belonging. In that case, they work to 'meet the needs of others while meeting their own needs' (McMillan & Chavis, 1986, p. 13). Tonnies (1887) also affirms that a community is made up of social interaction. As he believes that community is necessarily small, he relates the small size to a consequent frequent interaction between the members of the community. Brint's (2001) research confirms that members of geographical-based small communities tend to present relatively frequent interaction. Nevertheless, other studies, such as Kearns & Parkinson (2001), suggest that people who live close do not necessarily interact with each other (see Figure 3-8).

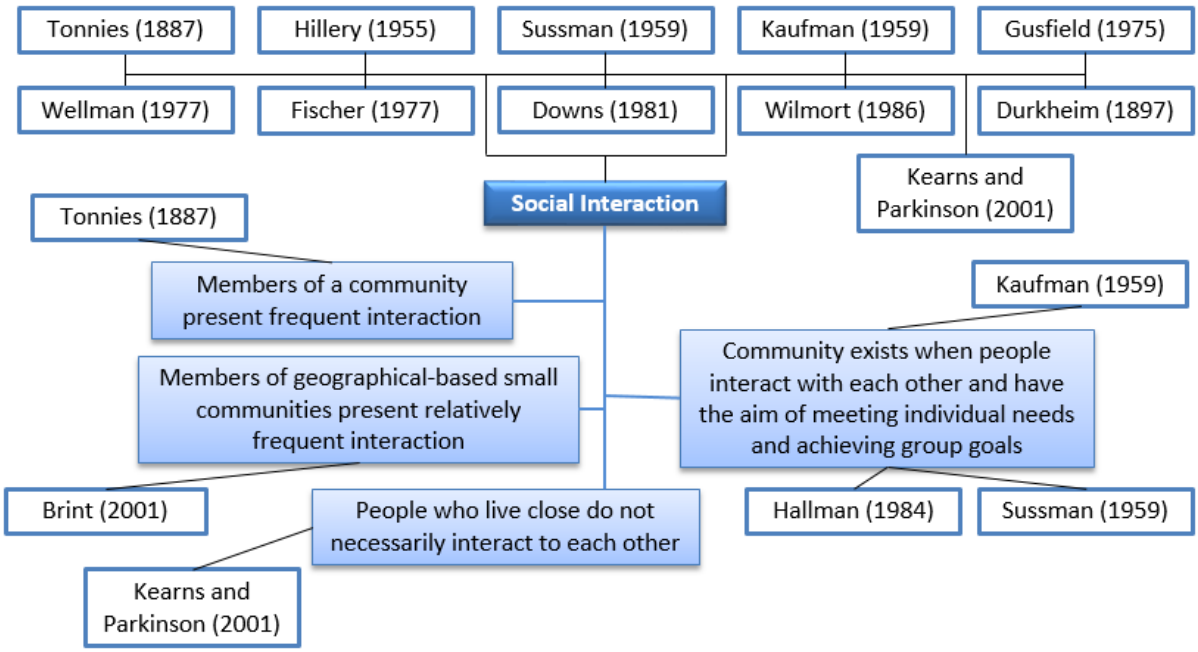


Figure 3-8 – Diagram of views of sociologists who relate community to social interaction.

Social Variables

The social interaction of an individual can have an impact on his or her sentiment of attachment to the community. The interpretations for sentiment of attachment to community varies from one author to another (Fischer 1977), but it can be understood as when the person has the feeling of belonging to a place or group and recognises the existence of this feeling (Lee & Newby 1983; Willmott 1986). The scale of interaction and sense of attachment of an individual can vary through the influence of a range of variables that exist in communities (Scannell & Gifford 2010). König (1968), who adopts the three main elements of Hillery's (1955) studies to his investigations, i.e. social interaction, territory, and common ties, lists - form of land settlement, location, size, age, gender, ethnicity, and family size as some of these variables. The interaction of these characteristics can compose the social system of

a community. The social system is related to people who recognise the characteristics of their relationships with others, such as their limits and their 'differences from other similar relationships' (König, 1968, p. 28). This type of structure of relationship is crucial for the existence of social and cultural identity in a community. In addition to the aforementioned variables, the other elements that a community must contain for the identification of its social system are 'the communication system, the group formations within the community, the social control and the inner tensions, the power and class stratification, and, finally, the cultural traditions' (König, 1968, p. 29). The social system is independent of variables, such as demographic, economic, and ecological aspects, and it is the essential key for the maintenance of social identity in a community.

In the cases of geographical communities, such as a neighbourhood, the feeling of belonging to a place can be, amongst other characteristics, related to the length of time the individual has lived in that locality (Hunter 1975; Kasarda & Janowitz 1974; Riger & Lavrakas 1981). People who have lived longer in a place tend to have more chances of presenting stronger sentiment of attachment (Hunter, 1975). Length of residence was found in Kasarda & Janowitz's (1974) research as the variable with the most significant impacts on the level of interaction of people within their community and their sentiment of belonging. Riger & Lavrakas (1981) analyse the effects of the length of residence on the sentiment of belonging through two factors, namely Behavioural Rootedness and Social Bonding. The first of these is related to the length of residence for a person, and whether the resident is an owner or a tenant, while Social Bonding is related to the feeling of belonging to the community where he or she lives. The levels of rootedness and bonding of the residents are divided into high and low, and four 'meaningful and distinct groups of citizens' (Riger & Lavrakas', 1981, p. 64) were identified, i.e. young mobiles, young participants, isolates, and established participants. The group of young mobiles is composed of well-educated young adults without family. Riger & Lavrakas' (1981) research points out that this group is low rooted and low bonded. They are less likely to become involved with the neighbourhood but more likely to go out for a walk at night or for entertainment, for instance, and they plan to live in that locality temporarily. Young participants are young adults that are usually less educated than the young mobiles and live with their families. They can be exemplified by a couple with young children. This group is low rooted and high bonded. They are more likely to become involved with the neighbourhood but equally likely to go out for a walk at night or for

entertainment. The members of this group plan to live permanently. Isolates are older adults without children still living at home. They are high rooted and low bonded, and have little involvement with the community. The group of the established participants is composed by older adults and have their children living at home. This group is high rooted and high bonded. The established participants are highly involved with the neighbourhood and they plan to live there permanently. Therefore, Riger & Lavrakas' (1981) investigation confirms that, as well as the length of residence, there is also a range of other factors that influence the level of interaction and sentiment of attachment to the community, such as presence or absence of children at home (Doolittle & MacDonald 1978; Shulman 1975), being home ownership or tenant (Hunter 1975; Fischer 1977; Keller 1968), and age (Forrest & Kearns 2001; McCulloch 2001; McCulloch & Joshi 2001). Other studies also point to race, social class (Hunter 1975; Fischer 1977; Keller 1968; Shulman 1975), gender (Atkinson & Kintrea 2001; Ellen & Turner 1997; König 1968; Rollero & De Piccoli 2010; Tartaglia 2006), and income (Forrest & Kearns 2001; Lupton 2003a) as influential elements to the scale of social interaction and feeling of belonging to the community.

Keller (1968) believes that the level of interaction for a resident within his or her neighbourhood can also be related to the degree of self-sufficiency and autonomy. Wellman (1979) adds that neighbourhood networks are networks of necessity, as they are based on certain helping relationships, such as providing aid in emergencies (Riger & Lavrakas, 1981). Nevertheless, this theory is contested by Hunter (1975), through what he calls conscious communities, which exist when the feeling of attachment 'persists because of adherence to a clear set of values despite the absence of traditional functions which formerly bound people to neighbourhoods' (Riger & Lavrakas, 1981, p. 57), not only by necessity, as Keller (1968) and Wellman (1979) suggest.

There is a distinction between the feeling of belonging to a community and being involved in local social events (Doolittle & MacDonald, 1978; Hunter, 1975; Fischer, 1977). People can have frequent social interactions within their community without developing sentiment of attachment and vice-versa. It led to investigations which analyse separately how the social variables affect the social interaction of people and their feeling of belonging. Kasarda & Janowitz's (1974) research is an example of this type of investigation. It analyses which items influence the sentiment of

community and which influence the interests for interaction within the community. It was found that the items - informal social activities, organisation memberships, and the number of friends and relatives living in the community have different impacts on the strength of the sentiment of attachment and social interest for the community. The research indicates that the number of friends living in the same neighbourhood is the most influential item to the sentiment of community. Having relatives living nearby also strengthen the feeling of belonging for an individual but it has no relevant effect on the interest of the person in community matters. On the other hand, being a member in local formal organisations has a strong impact on community interests but insignificant influence on sentiment of attachment to the community and desire to remain in that place. Involvement in informal social activities has moderate impact on community interests and sentiment of community but no effect on desire to remain. The stage of individuals in their life-cycle can influence behaviour and attitudes within the community and the level of feeling of attachment. Older people tend to be less involved within his or her community. Kasarda & Janowitz's (1974) investigation also points to how the population size and density of a community can be influential the behaviour, attitudes, and the level of feeling of attachment of its residents. However, it was found in their research that these two items do not have relevant impacts on the local friendship, kinship, and associational bonds.

Doolittle & MacDonald (1978) developed the Sense of Community Scale (SCS) - to analyse the relation between the sentiment of attachment and the communicative behaviour amongst the residents within a neighbourhood. A community can present low, medium, and high SCS levels on six factors: supportive climate, informal interaction, safety, family life cycle, neighbourly integration, and localism. Supportive climate is related to the amount and quality of interaction amongst residents of the neighbourhood. Informal Interaction is about the frequency residents visit others in the neighbourhood. Safety is related to items such as how good is the neighbourhood for raising teenagers and leaving the children to play outside. Family life cycle is associated with the number and ages of the households and how it influences their interaction with the neighbourhood. Doolittle & MacDonald's (1978) findings about this factor matches with Keller's (1968), who notes that families with young children and teenagers living at home tend to be more concerned and actively involved with the matters of their neighbourhood in comparison to other families. Fischer (1977) adds that families with children are

more strongly connected to the local organisational and social bonds in their neighbourhood but less emotionally attached to that community. Neighbourly integration is about the feelings and identity amongst the neighbours, such as if they know and like each other and how likely they are to be active participants in the events and organisations of the neighbourhood. Doolittle & MacDonald's (1978) study indicates that people who present higher levels of knowing and liking other neighbours are less likely to be active participants in the events and organisations of the neighbourhood. It shows that despite people having close bonds and frequent interaction, they do not find it necessary to be part of a formal association. Localism is about the need and desire of the residents to interact in the neighbourhood. It was found that when neighbours have good relationships and frequent interaction with each other, they find no need to have extra mechanisms of meeting. Instead, they 'tend to have diffuse geographic shopping habits' (Doolittle & MacDonald, 1978, p.6). McMillan & Chavis (1986) state that there are three main conclusions that could be extracted from Doolittle & MacDonald's (1978) research. The first is the notion that there is an inverse relationship between the behaviour of favouring privacy and anonymity (Adebayo 2007; McMillan & Chavis 1986) and preference for neighbouring. Secondly is that there is a direct relationship between safety and preference for neighbouring. And lastly, the level of preference for privacy and anonymity decreases as the perception of safety increases.

Scholars, such as Atkinson & Kintrea (2001), Forrest & Kearns (2001), Galster (2001), and Lupton (2003a), argue that it is not only the internal characteristics that have an impact on a neighbourhood, but also the relation between that locality and its surrounding urban areas. Based on the results found in previous studies (Lupton 2003b; Dean & Hastings 2000; Bowman 2001), Lupton (2003a) affirms that residents are concerned about the reputation that their neighbourhood has in the city. The studies indicate that a majority of the residents in poor localities believe that their neighbourhood had a poor reputation in the city. Although there is a lack of accuracy about the effects it causes in the life of the residents, Lupton (2003a) alleges that this concern is stronger when the poor neighbourhood is located in a more prosperous city, with a higher average income and fewer deprived areas. It is possible to conclude that a comparative system is adopted by the residents when they assess their own neighbourhood.

The importance of social relationships to a neighbourhood can vary from a place to other. Forrest & Kearns (2001) claim that the relevance of a neighbourhood tends to be greater for people with lower income than for families with better economic conditions. The reason for this is related to the fact that poor people usually spend more time in their place of residence in comparison to wealthier people, as there are a higher number of unemployed people or pensioner households. Nevertheless, it can also be related to mobility, as poor people usually have more limited mobility than wealthier people (see Figure 3-9).

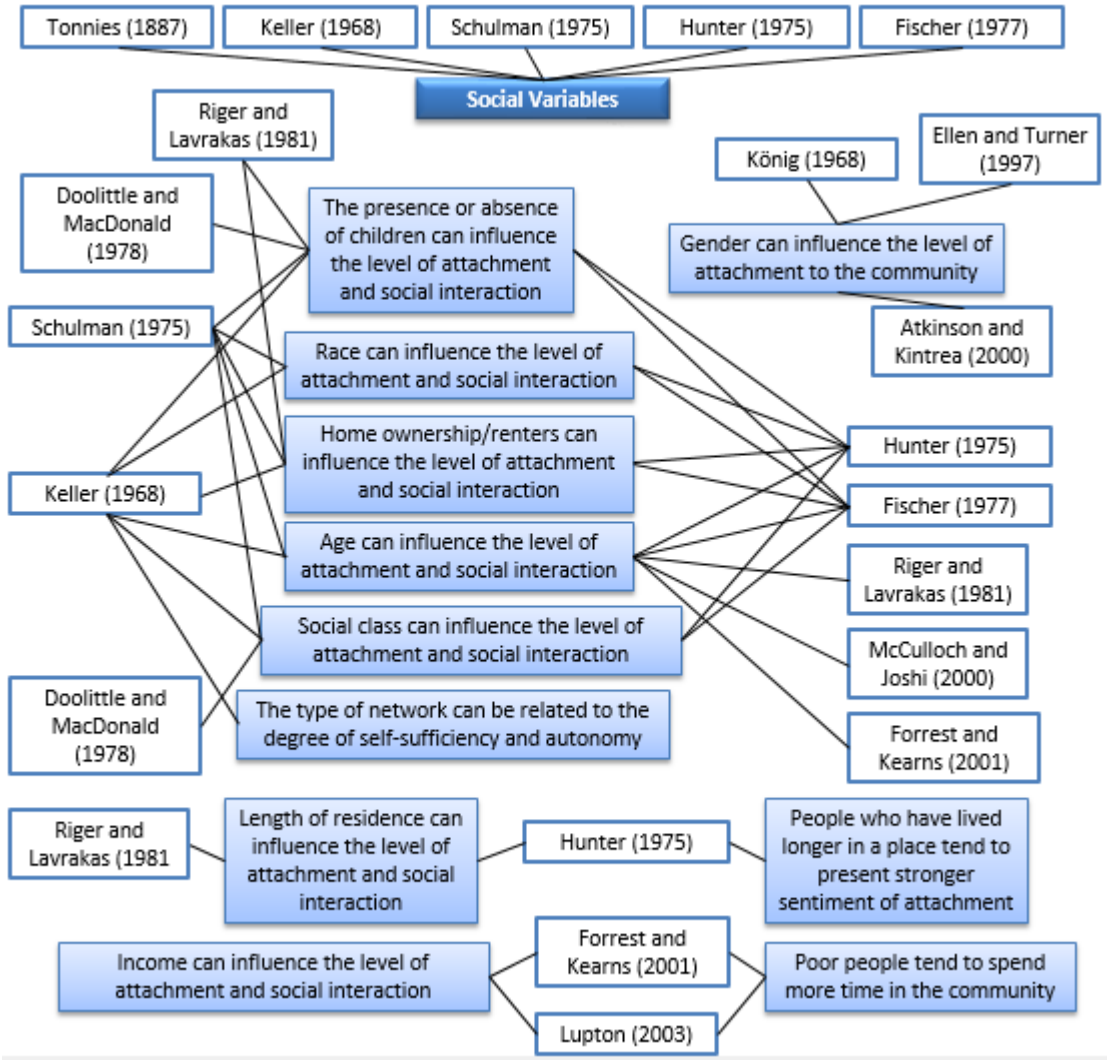


Figure 3-9 – Diagram of views of sociologists who relate community to social variables that influence social interaction and sentiment of attachment.

Mobility

The relationship between some of the social variables, such as: income, age and gender, the level of attachment, and social interaction within a community can also be determined by mobility. The significance of mobility either to the social interactions or to the sentiment of attachment, approached by scholars such as Durkheim (1893), Bell & Newby (1971), Kasarda & Janowitz (1974), Kearns &

Parkinson (2001), Riger & Lavrakas (1981), Tonnies (1887), and Wellman (1979), can present different perspectives. The location of the community can also have an influence on the limitation of mobility of its members. According to Tonnies (1887), communities based on a common geographic area are usually located far from the centre. This can have an impact on the mobility of the residents between the inside and the outside of the community. Bell & Newby (1971, p. 24) state that 'community encourages immobility' as its individuals do not tend to move far from their locality of birth. This statement is based on Tonnies' (1887) and Weber's (1921) idea that individuals can present attachment to place and people, and might develop loyalty for them. König (1968) adds that the majority of people spend most of their lives – in some cases, their entire lives – in a single community. He concludes that 'the community represents totality of life not only in its inner extent, but also because for many it is absolutely identical with the totality of life itself' (König, 1968, p. 5).

With the improvement of communication and transportation in modern society, locality is not necessarily a major limitation (Durkheim, 1893; Riger & Lavrakas, 1981; Wellman, 1979). Therefore, people can choose their social network members from beyond the locality (Kasarda & Janowitz, 1974; Wellman, 1979). However, there are people who have limited mobility for economical and physical reasons, and they have to limit their network bonds based on proximity (Riger & Lavrakas, 1981; Wellman, 1979). As the elderly and mothers with young children have less chances of mobility, they are more likely to need and want local ties with their neighbourhoods (Fischer, 1977; Riger & Lavrakas, 1981; Wellman, 1979), while young singles do not tend to develop attachments to the place (Fischer, 1977). Poor people also present greater limitations of mobility for economic reasons, which is another reason that they spend more time in their neighbourhood than wealthier. This statement adds to Forrest & Kearns' (2001), which argue that a neighbourhood has usually a bigger importance to lower income people. The diagram below presents some of the main ideas approached by authors about the influence of mobility in a community (see Figure 3-10).

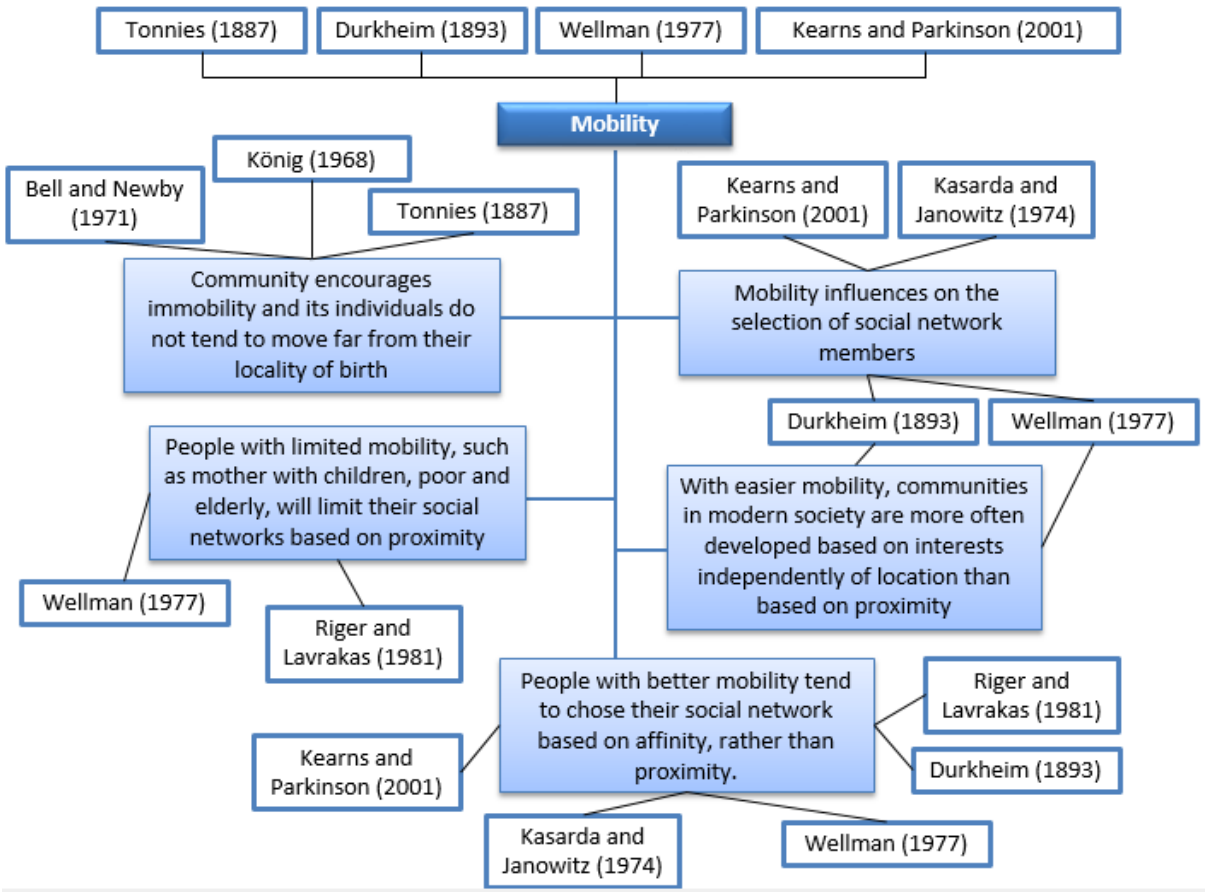


Figure 3-10 – Diagram of views of sociologists who relate mobility to social interaction and sentiment of attachment to a community.

3.1.5 Artificially Created Communities and Boundaries

The sentiment of attachment or sense of community usually happens naturally. It is often caused due to factors such as the level of social interaction. As the scale of social interaction can be influenced by the social variables, it is believed that an intentional intervention on these variables could lead to a greater level of interaction between community members. Therefore, it is claimed by authors such as Bauman (1990), König (1968), and Suttles (1972), that the sentiment of community can be artificially created. Suttles (1972) alleges that the planners and developers are able to induce the development of a local social system, through the creation of mechanisms that develop the idea of belonging to a community. However, the idea of a natural community may seem more attractive to people, as it gives the impression of being created automatically by its own members (Bauman 1990; Suttles 1972). Nevertheless, there is a belief that this is a romantic idea, and the expectation of leaving it to happen naturally has a very uncertain outcome. Suttles (1972) defends the idea that the planners and developers should take the role of intervening in the process of creating the sentiment of community in people. Moreover, the artificial mechanisms created would, in time, be considered natural

by the members of the community. An artificially created community, e.g. a new settlement in a development area, will in time adopt its own cultural features and then appear as a naturally created community (König, 1968; Suttles, 1972). König (1968) calls ‘artificially organised’ the result of the artificial process, and ‘organic growth’ as communities that arise naturally. He affirms that these two types of social structure are homogenous with each other, rather than opposites, since sooner or later both artificially organised and organic growth communities will present their own traditions that will provide them with natural aspects, as they had arisen naturally.

In the case of territorially based communities, physical mechanisms can stimulate social interaction and thus result in the development of sentiment of attachment (Lewicka 2011). One of the features suggested by Suttles (1972) to induce the sentiment of community is the use of patterns to create residential segregation, as there is an idea, also defended by Cohen (1985), that it is more likely to feel part of a community when it is well defined who are the insiders and outsiders of that group. The boundaries can play a fundamental role in defining who are the members and non-members of a community (Cohen, 1985; McMillan & Chavis, 1986). In order to form a community, it is necessary to determine not only the people who have similarities, but also with people with differences. The idea of being included in a group can be clearer when it is perceived that there are people who are excluded from that (Cohen, 1985). However, the boundaries do not necessarily need to be physical; instead, they can be, for example, a language, a clothing style, or a type of ritual, in a way that they will be recognised by the members of the community (McMillan & Chavis, 1986). Even when they are physical, they can be subtle, such as graffiti on walls of the neighbourhoods, in order to be subtle but still acknowledged by the residents (Bernard 1973; McMillan & Chavis 1986) (see Figure 3-11).

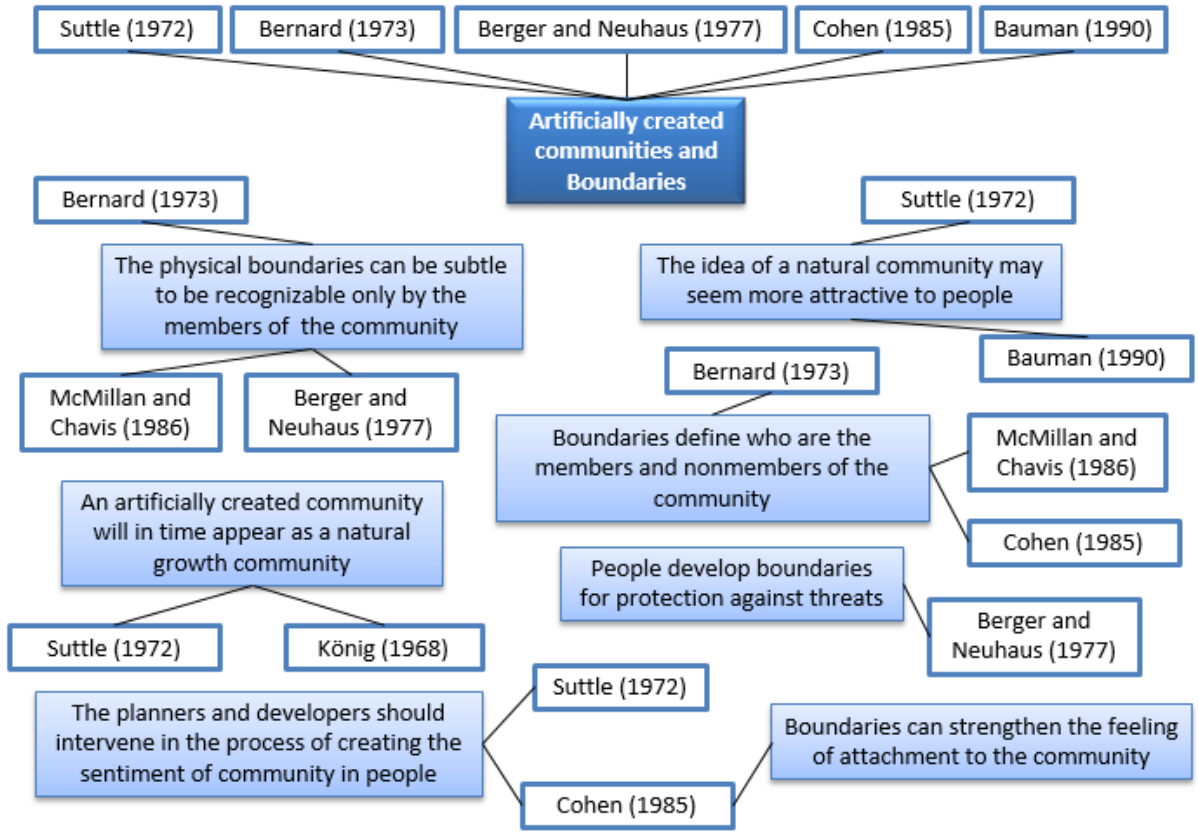


Figure 3-11 – Diagram of statements about artificially created communities and boundaries.

The importance of attempting to intentionally create mechanisms in a neighbourhood to provide the residents with the sentiment of community is due to the impact it can cause in their lives. As the quality for life of urban residents can be largely determined by the environment surrounding their homes, then the conditions of the neighbourhood where they live can cause significant effects in the quality of life of those residents (Ahlbrant Jr., & Cunningham, 1979; Lupton, 2003a). The quality of the conditions of a neighbourhood is not determined only by the housing stock, but also by the social interactions between neighbours, safety and security, accessibility to cultural facilities, shopping and transportation, and the number and standard of services available for the residents, either private or public. The satisfaction of residents with their neighbourhood is strongly influenced by the combination of all these items. The commitment of people with the place where they reside is strongly influenced by the level of satisfaction they have in relation to their neighbourhood. Therefore, housing programmes that do not take in consideration the public services and have as the only concern the creation of housing units could not be considered to stimulate commitment from the residents to the place where they live and investment by the private sector (Ahlbrant Jr., & Cunningham, 1979).

Mixed Income Communities

Intervening in some of the social variables of a community could be a way of stimulating its members to have greater interaction between each other, and to increase their chances of developing a sentiment of community. It is through that line of development that the proposals of balanced or mixed income communities have arisen. Although its definition can vary (Levy et al. 2010) it can be basically understood as a geographic area, such as a neighbourhood, resided by families with different levels of income (Briggs et al. 2009; Galster et al. 2008; Levy et al. 2010). There is a discussion amongst researchers about how beneficial it can be for a neighbourhood to have families with various levels of income, and whether stimulating them to live in the same neighbourhood can present more advantages or disadvantages. Amongst the benefits presented in the existing research, there is the argument that lower income people living in the same neighbourhood as higher income families can have access to more services, along with better services, as the presence of higher income people would cause demand for services with higher quality and greater variety in the neighbourhood, which could benefit all residents (Briggs 1997; Duke 2009; Joseph 2006; Joseph et al. 2007; Kleit 2001; Levy et al. 2010; Vale 2006). It is also alleged that people who live in mixed communities tend to develop a higher level of social tolerance, as they would live with people from different backgrounds (Duke 2009; Joseph & Chaskin 2010; Gans 1961a; Gans 1961b). Another advantage of a balanced community is the influence of behaviour of higher income people (Duke 2009; Joseph et al. 2007; Levy et al. 2010). Nevertheless, great gaps in income between the neighbours could be an obstacle for their interaction. People are more likely to interact with their peers of an equivalent socioeconomic status (Joseph 2006; Joseph et al. 2007; Vale 2006). Therefore, mixing families with low and high incomes might not achieve the goals aimed for, as great differences of income would form two distinct groups of interaction causing segregation within the community. As a solution, a range of different degrees of income could be incorporated. People with moderate income could bridge the income gaps between the poorest and the wealthiest neighbours (Joseph 2006; Joseph et al. 2007). However, the current research shows that the interaction between the lower income with the higher income people does not take place (Fraser & Nelson 2008; Joseph 2006; Joseph & Chaskin 2010). Through an analysis of investigations, e.g. Joseph (2006) and Vale (2006), it is possible to conclude that the most significant advantages for the lower income people who live

in a mixed community are related to the services and amenities in the neighbourhood. Thus, it is in their interests to achieve these benefits, without mixing residents with various levels of income.

The Influence of the Physical Elements in the Neighbourhood

Vale (2006) claims that good management and physical elements such as good house design, could be some of the ways to achieve an improvement to services in a neighbourhood. According to Gans (1968), while sociologists tend to argue that culture and social structure are the principal responsible for quality of life of people, planners claim that it is the physical environment that plays the significant role in affecting human behaviour. He gives an example to illustrate this polarisation of ideas between planners and social scientists. While planners believe that growing-up either in a flat or in a single-family house can be a crucial matter in the development of children, social scientists argue that the economic, social, and cultural conditions are the elements that give the most significant impacts in the quality of child development. In that case, planners would recommend single-family houses rather than flats for children, while social scientists would state that economic and social changes would have a stronger influence. Therefore, it is possible to note that the proposals of mechanisms to cause an impact on the quality of life of people vary according to the discipline that approaches the subject.

Planners, architects, and urban designers believe that social interaction and sentiment of attachment can be achieved through the development of physical elements in the neighbourhood (Briggs 1997; Levy et al. 2010; Lupton 2003a; Roberts 2007; Talen 1999). They consider that the design of the houses, plots, streets, and public spaces can influence the interaction between the residents and strengthen their sense of community. The houses should be designed in a way as to enable chances of having occasional contact with the neighbours and others in the community. This is best achieved through the integration and hierarchy of internal and external spaces. Levy (*et al.*, 2010) states that as well as external space associated with dwellings, public spaces in a neighbourhood could also have a significant role in the promotion of social interaction between the residents. Roberts (2007) asserts that public spaces may have an even stronger impact on the level of interaction between the neighbours than the design of the houses themselves. The planners believe that when a public space is designed appropriately, it stimulates the neighbours to inhabit them and therefore to promote social encounters. As the

occasional encounter of neighbours is a major concern of planners to promote social interaction in a neighbourhood, then the streets, which should also be thought as a public space, could also encourage a high presence of pedestrians. Streets should be designed to enable pedestrians to circulate around the neighbourhood, increasing the chances of meeting other residents (Talen, 1999). Therefore, the design of the environment of a neighbourhood could cause different impacts for the community.

Despite their efforts, projects developed by planners do not always have the intended outcomes. Gans (1968, p. 6) uses the name 'potential environment' and 'effective environment' to separate what is planned and what is aimed for. Potential environment is the space that the planners create. A potential environment can become an effective environment when the features suggested by the planners for space meet the social system and cultural values of the residents. Nevertheless, when the planners develop elements to influence the behaviour of people, they might not always have the desired results. The impact that the planned environment causes on people is more related to how the residents react to the environment than to the mechanisms used by the planners. It is necessary to know the cultural and social values of the users in order for them to be met. Gans (1968) states that in cases where the cultural values of the planners do not coincide with the residents' and, without considering the cultural features of the residents, planners use only their own perspective, then the planned environment might become a place without use or having an unexpected use. Therefore, it is fundamental to understand how proposals will relate to the cultural values of the residents, in order to achieve an effective environment.

3.2 Principles of Home

Home is a set of different meanings congruent to a specific place. It is when a place of residence transcends the basic functions of a shelter for an individual and furnishes an emotional attachment to that individual in relation to their place of residence (Oswald & Wahl 2005). Sixsmith (1986) attributes personal, social, and physical aspects as the three components compromising home. Home gathers social relations, personal emotions, and human needs to a single physical structure. When these aspects are put together in a specific environment of residence, it makes that space becomes a meaningful environment to a person, exceeding the notion of a space for simply house functions. Therefore, it is possible to understand

that there is a difference between house and home. This differentiation happens because house is simply a physical environment, while home is that environment but with activities, experiences, and meanings; i.e. home can be understood as the relationship between house and people. Thus, it is important to understand the components of home, which are house – a physical space, human needs, and the combination of these two elements.

3.2.1 Space

Space can be defined as a volume contained by boundaries (Low 1992), without producing meanings and sensations on people. It has practical functionalities but does not generate sentiment of attachment to its users. Within the context of residence, space is represented by house. A house is a space which operates a shelter for people to live and furnishes a physical structure to delineates the limits of where is private and where is public environment for an individual or a group (R. J. Lawrence 1987; R.J. Lawrence 1987; Rapoport 1995a). Besides being a shelter, the purpose of a house is to provide functionalities and facilities to meet the activities of its occupants. It can present various forms and configurations (Hillier & Hanson 1984) and it usually has different spaces to provide the daily needs of its residents and to suit their habits and lifestyle (Rapoport 1969). The activities of the occupants in a house, which can be, for instance, sleeping, cooking, eating, bathing, storing, entertaining and socialising, can be the key responses for the configuration and arrangement of the house. A house can be composed of numerous rooms, where each room is assigned to host a specific activity; or it can present an open floor plan, where all the activities occur in the same space, without physical barriers separating the rooms and their functionalities (Hanson 1998). The configuration of a house, with its number and distribution of rooms, is the response of the building in relation to the needs of the users, which includes the residents and visitors, and a form of translating the relationships between the users and the residence (Hillier & Hanson 1984).

A house does not exist only though the set of its rooms but also through the form they are distributed and connected. The rooms, with their locations and their linkages, compose a house (Hanson 1998). The arrangement of the rooms is usually the main element responsible for the shape of a house. Although the floor plan is the main factor in the formal composition of a house, there are more attributes that compose its visual appearance. Construction materials, architectural typology

and threshold can be seen as the main attributes of influence in the aesthetic of a house. The characteristics of each of these attributes in a house vary in accordance with three major factors – period, location (Rapoport 1969; Breckon & Parker 1991) and social class.

There is a range of construction materials, such as bricks, wood, steel, concrete, and glass. The construction materials have changed over years, as new construction techniques have been developed. Therefore, houses built in distinct periods are likely to present several types of construction materials. Not only time but also location can be a major element to influence the type of construction material to be selected. Each locality tends to make use of construction materials in accordance with its culture, availability in the region and climate conditions. When selecting the materials for a house, the developer might take one or more of these elements into consideration. Thus, the material for the construction of a house can vary from one place to another. In addition, the social class of an individual can influence the materials they might use for their house construction; either for economic reasons or even social status. These three factors – period, location, and social class - have also an impact on the architectural typology of a house. The three main architectural typologies that define the form that a house can be disposed in a site are villa, semi-detached and terrace houses. The preference for any of these types varies in accordance with the above mentioned factors. The same occurs with the threshold; in Brazil, during the colonial period, it was common for the houses to be built to the front and side boundaries of their plots (Reis Filho 2000), which has changed over the years, as the notion of private and semi-public domains within a residential plot have modified over the eras. Besides the offsets of a house from its boundaries; the number, and types of entrance of a residence can also vary. People from certain social classes might prefer a distinct entrance for their housemaids, while in some countries even gender can be a matter of segregation for entrances (Rapoport 1969; Hanson 1998). Moreover, it can be common in certain localities that a house has both social and service access arrangements, where the service can be through the kitchen or laundry and the social is usually through the hall or living room. Therefore, the entrance of a house can be separated either for social class, gender, or functionality (see Figure 3-12).

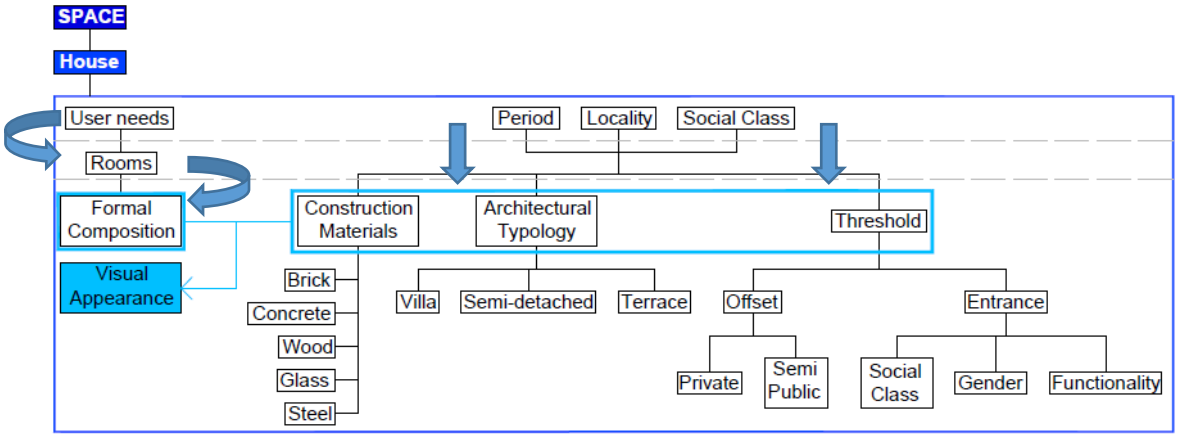


Figure 3-12 – The main characteristics of house and how they relate to each other.

3.2.2 Human Needs

The human needs subject is a complex matter, considered by Doyal & Gough (1991) as a tool for self-protection, and which can also be understood as a form of mechanisms to provide a good quality of life. Max-Neef (1992) states that human needs are universal and invariable, which cannot be influenced by any cultural or environmental features. According to him, human needs remain the same over different periods and distinct localities. On a different branch of development for this thinking, Gomes (2011) claims that human needs are susceptible to variations and influence from the external world. They vary from one person to another. There are numerous variables that influence the needs of a person, from personal characteristics of an individual to the surrounding environment where one was born and has lived, which includes a range of factors such as historical, social, economic, and physical contexts. Nevertheless, Maslow (1954) suggests a pattern of components of the human needs, which he classifies in distinct categories and levels of a hierarchy.

Maslow's (1954) proposal is considered as one of the pioneering and most influential works on the subject. The basis for the hierarchy of the human needs is the physiological needs. Once those needs are satisfied, then a subsequent level in the hierarchy emerges and so on. The category of physiological needs is related to the basic life needs, such as air, water, food, sleep, sex, activity, temperature, and shelter. The second category is about safety needs, which is composed of needs for protection, security, stability, routine, order, and limits. These two first categories of human needs of Maslow's work can be considered as primary needs, as those ones that are invariably on the basis of the hierarchy of human needs regardless of environmental factors such as social, historical, econimic and cultural contexts. From the third category on, it is possible to note a transaction from physiological to

psychological needs, as the third category is related to social needs, which is formed by belongingness, love, affection, family, friendship, and relationship. The fourth category of human needs is esteem, which is about status, achievement, reputation, responsibility, respect, independence, and confidence. The fifth category is composed of aesthetic needs, which is the desire of an individual for beauty, balance, and form. The sixth and last of Maslow's hierarchy for human needs is self-actualisaition, which is associated with fulfillment, creativity and authenticity (see Figure 3-13).

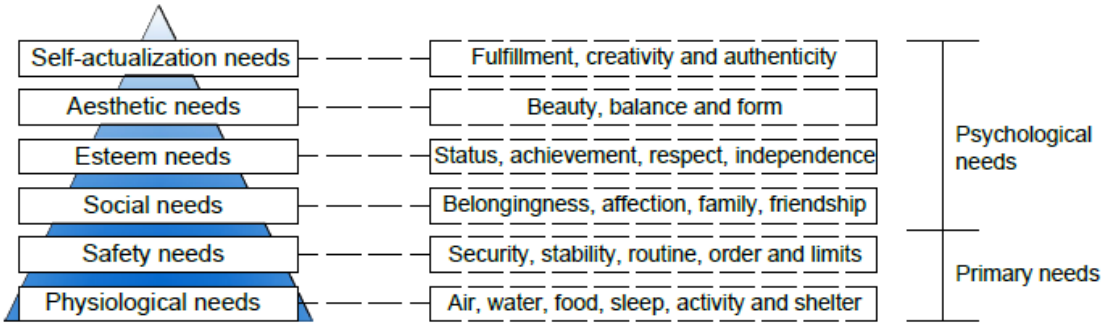


Figure 3-13 – Hierarchy of human needs with their main components.
Source: Based on Maslow (1954).

Based on Maslow's hierarchy and on what a residence can offer, it is possible to say that each of these categories contain a component that can be translated to the needs of an individual in relation to his or her residence. In an association of the hierarchy of priorities proposed by Marlow and the expectations and desires of people in relation to a house, it is possible to identify the main attributes and find a specific hierarchy within this case. The first category would be shelter, followed by safety, sentiment of attachment, status, aesthetics' desire, and self-fulfilment. These elements could then be the bridge to overcome the gap between a house and a home (see Figure 3-14), as they go from a shelter, which is a physical space that can be represented by a house, to feelings of belonging and self-fulfilment.

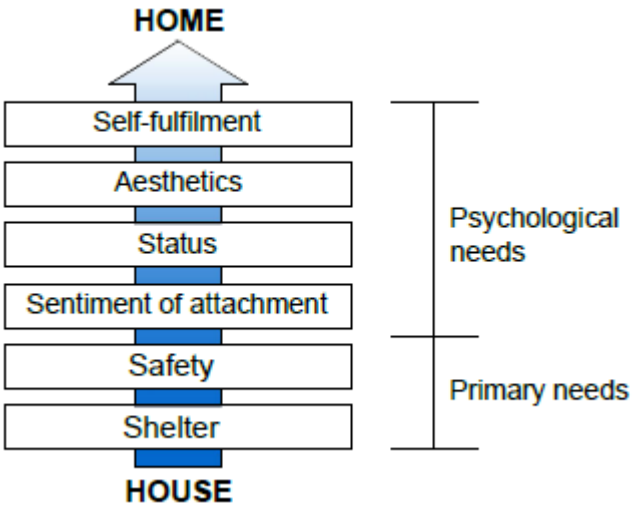


Figure 3-14 – Hierarchy of human needs for home.

3.2.3 Place

The interpretations for the term place are approached by disciplines such as architecture, geography, philosophy, psychology and sociology (Low 1992; Relph 1976; Casey 1997) and the meanings suggested for this term vary from one discipline to another. Nevertheless, there are points of congruence of interpretations for place. Like space, place is related to a specific locality, a physical environment (Tuan 1977). However, it differentiates from space by the fact that place can be experienced by an individual or a group (Rapoport 1977; Trancik 1986). It can be understood as a setting of physical attributes, like space, but with activities that create meanings (Relph 1976). The activities and experiences of people in a place can be the responsible for the generation of a sentiment of attachment to that place (Altman & Low 1992; Norberg-Schulz 1979). Therefore, a place is a space experienced by people, which generates activities and can result in a sentiment of attachment. Thus, it is conclusive that place is the combination between space and people (see Figure 3-15).

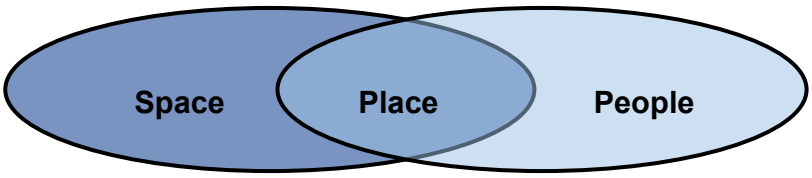


Figure 3-15 – Place as the intersection of space and people.

According to Agnew (1987), place is a space with social, economic and cultural characteristics, creating a sense of place for people, related to territorial identity. Sense of place happens when a space becomes a meaningful locality to an individual or a group (Gesler 1991; Hay 1998). It occurs through experiences and

activities of people in a certain location, which can develop to emotional attachments and the recognition of these feelings and emotional bonds (Tuan, 1977; Williams et al, 1995). Aravot (2002, p. 202) identifies sense of place as 'a human need, essential for well-being and feelings of safety, security and orientation, and a remedy against feelings of alienation and estrangement'. Sense of place varies from one individual to another. Each person has his or her own conceptualisation of place (Canter 1977; Relph 1976). There are numerous variables that influence the relationship between people and place (Relph 1976; Tuan 1977; Norberg-Schulz 1979; Casey 1997; Altman & Low 1992; Larson et al. 2013), such as length of residence (Giuliani & Feldman 1993; Stedman 2003; Brown & Raymond 2007), social connections and interaction (Hummon 1992; Low 1992; Lewicka 2005; Livingston et al. 2008) as well as social status (Hay 1998; Kaltenborn 1998; Larson et al. 2013). These variables are also responsible for the development of other two elements of sense of place, which are place attachment and place identity.

Place attachment and place identity are interconnected. Place attachment is related to emotional and positive ties of people to a particular locality (Tuan 1977), while place identity is when an individual has the sentiment of belonging to a place and has the feeling of being part of that environment (Proshansky et al, 1983). They both arise from the relationship of people with an environment, which includes the physical site and the people who live in that locality. Place attachment and place identity emerge and grow with time (Moore 2000). They can be either causes or consequences of the characteristics of a built environment. In the same way that a place can shape people, it can also be shaped by people. People build places based on their needs and cultural attributes, but the built environment can also help to generate an identity on people (Butina Watson & Bentley 2007). Through the visual appearance of the physical environment and its functions and activities, people create symbols in a place (Relph 1976) and these symbols can represent people's identity (Norberg-Schulz 1979).

Place attachment, sentiment of identity and sense of place can be major elements of influence of the level of quality of life of people in relation to a certain locality (Duncan & Duncan 2001). People can enjoy more a place where they have a sentiment of belonging and recognition of an identity, which can lead them to develop feelings of attachment to a place and generate a sense of place through the acknowledgment of these feelings. These elements together are related to the

satisfaction of needs such as privacy, security and serenity, which are aspirations of people in a place (Altman & Low 1992). These needs match to what Rapoport (1995b) considers as the primary functions of home, along with comfort and shelter. Therefore, based on this statement and on the studies afore presented, it is possible to conclude that within a residential context, place is represented by home. Thus, while house is a space, home is a place, as it is the connection of a house – space, with the human needs and emotional attachments.

3.3 Home and Community Development

3.3.1 Types of Basis for Home and Community Development

Governmental programmes for home and community developments are commonly divided in two lines of development: people-based and space-based strategies. The former is focused on individuals' development, which usually occurs through social and economic interventions. The latter aims to develop built environment in a specific site. These views are polarised by social scientists and planners; social scientists argue that people-based approaches have greater impacts while planners defend that space-based strategies are the optimum. Although the governmental institution usually focused on either people-based or space-based strategies, there are also approaches based on place, which is the case when both space and people aspects are taken into consideration in the development.

People-based strategies

People-based strategies usually operate through economical investments to individuals, providing them with subsidies, to help them to achieve a better quality of life. This financial help tends to encourage migration, as people move to areas where they believe to offer them opportunities to have a better life. Although people can move to better places, the financial support they receive may not be sufficient to keep them in the new locality long enough for them to achieve an economic stability in the new locality (Turner & Briggs 2006). Therefore, those people tend to move back to poorer areas when they do not find opportunities to remain in the place to where they move (Goering & Kraft 1999). Moreover, this can have a negative effect with the loss of those people who have the opportunity to leave, leading to concentrated poverty (Green & Haines 2001). Thus, migration affects not only those who leave, but also those who remain in the communities, either for not being able or for not being willing to move out (Davidson 2009). Therefore, people-based

interventions can present deficiencies by not considering the communities based on locality.

Space-based strategies

Space-based strategies are those ones that consider only the physical environment without considering its meanings for people. This type of approach produces what Relph (1976) names placelessness. While a place has different meanings to different people, placelessness is where an environment is meaningless to any group or individual. Relph (1976) blames mass production for the emergence of placelessness. Scholars claim that changes in the society, such as globalisation, communication and mobility, have led place to become an irrelevant issue (Beatley 2004; Giddens 1991; Meyrowitz 1985). The modernist urbanism is a model that is claimed to have been responsible for placelessness (Aravot 2002), as the concern with emotional attachment to a place was considered a romantic and nostalgic anachronism in the modernist movement (Arefi 1999).

Place-based strategies

As people-based approaches fail by not considering the locality, and space-based approaches by not considering the human aspects, then it is important to identify strategies that conciliate both aspects. As previously presented, place can be understood as space with meanings to people. In contextual architecture and planning, the recognition of the importance of place could have a great relevance. When architects and planners do not consider the meanings that a location can have to certain individuals or groups, they are likely to generate anonymity (Gans 1968; Gustafson 2001). Moreover, place can have a vital relevance in the development of community and home. Successful communities are those ones in which their members expound a feeling of belonging. Home also only exists when the individuals present a sentiment of attachment to the place where they reside. Therefore, only strategies based on place could be capable to create home and community.

3.3.2 Housing Development based on Self-help

Seen that the governmental strategies for housing development based on top-down approaches have been focused only in spaces, it then is fundamental to have a broader view and search for other strategies for housing delivery. Based on this argument, this section aims to investigate self-help approaches, as it presents a bottom-up strategy, contrasting with the current approaches adopted by the

Brazilian social housing schemes. The origin of self-help is debatable (Marais, L., Ntema, J. and Venter 2008), but the academic literature usually points to John Turner as the pioneer (Harris 2003; Pugh 2000). Although the concept of self-help housing is argued to have been created by John Turner, the first projects using those principles were applied in South America and Africa, in the 1960s.

Principles of self-help

Turner's (1976) idea is that families should have the chance of planning, constructing, and managing their own houses, through their own labour. He argues that people should be able to build their houses gradually, in accordance with what their income permits, adding rooms and upgrading their dwellings when they are able to afford it. Therefore, not only the development and management should be carried out by the households, but also the investment. Harris (2003) adds that it would be more likely for the houses to meet the needs of their dwellers when a self-help strategy is adopted, as people can be the best judges of their own needs.

Not only each house but also the residential community as a whole could experience numerous benefits of self-help strategies. When a community is developed based on a top-down approach, its members rarely take part of the decisions made regarding the planning processes; and it can result in a delivery of services that may not necessarily meet the actual needs of the community (NESF 2003). Moreover, self-help approaches can have lower cost in comparison to top-down strategies, as it excludes the profits and extra charges with labour, contractors and subcontractors (Choguill et al. 1993).

Models of housing development based on self-help

Although there are numerous typologies and terminologies for self-help strategies, they usually overlap in various aspects. This work has identified four major tactics of developing social housing based on self-help and has presented their differences and similarities. The methods are site and services, incremental model, in-site upgrading, progressive improvement model, and housing cooperatives.

Site and services

This strategy is based on the provision of an appropriate environment for people to build their houses themselves (Marais, L., Ntema, J. and Venter 2008). Site and service approaches are usually supported by governmental help and by private enterprises. Site and services programmes usually delivers only the basic infrastructure of the site, in order to facilitate the development of housing in that

area. Land subdivisions, urban infrastructure, such as sewage networks, potable water and electricity, and community facilities, such as schools, are amongst the services provided. Financial support for the construction of the houses can also be one of the features offered to the households, which can operate through subsides from the government (Gattoni 2009; Hamid & Mohamed Elhassan 2014; Laquian 1983; Rodell & Skinner 1983)

Incremental model

This strategy consists of the idea that the physical features of a residential development can be built gradually, i.e. can be incremented over time. It does not apply only to houses but also to the services provided by the government and development agencies, such as urban infrastructure and community services and even plots and land subdivisions (Gattoni 2009). It means that the residential developments can be delivered in its most basic format, and be improved over time, by both the government and the residents.

In-situ upgrading

When the World Bank attempted to apply the site and services programmes in South America, it encountered obstacles concerning acquisition of land for the new developments, as those countries suffer with land speculation. As the World Bank housing projects to be developed in South America during the 1970s should have the lowest cost possible, the World Bank opted to invest in upgrading informal settlements in order to overcome the obstacles related to land issues (Stein 1991).

Communities based on informal settlements can be upgraded instead of redeveloped. When communities go through the process of a total redevelopment, they have their entire area demolished, and their occupants must be relocated to a new site, where a new development will be built. In-situ upgrading is an alternative for this situation, as it intends to minimise the effects of disruption to social and economic networks of residents by reducing the number of people relocated to a new development (Del Mistro & A. Hensher 2009). Besides recognising the social networks of the residents, upgrading existing communities can also have lower cost than demolishing existing buildings and relocating the residents (Wegelin 2004) (Wegelin, 2004). Furthermore, those people could be relocated to areas further to their place of work, increasing their expenses with transport and possibility also resulting in less access to opportunities of formal employment (Martin, 1983, pp. 53-79).

The level and type of intervention in the physical aspects of the informal settlements can vary, in accordance with the characteristics of the site and quality of the constructions of the development. However, the residential areas usually undergo interventions in all their physical levels, from the urban infrastructure to the houses (Wegelin, 2004). Besides interventions in the environment, it is also fundamental that the households have security of land tenure. The tenure security has a crucial role in informal settlements upgrading by the numerous benefits it can bring, such as the willing and motivation of households in investing in improvements in their houses and community; reduction of statistics regarding housing problems, as those areas would no longer be counted as illegal settlements; giving the opportunity for the households to sell or let their property and reap the advantages of a possible increase in the property value; and a possible increase on the municipal revenue, as those houses would undergo municipal taxation (Martin 1983).

Progressive improvement model

The progressive improvement model has been primarily advocated by Choguill *et al* (1993, 1994) and Choguill (1999). This approach recognises the importance of the basic urban infrastructure for the development of a residential area, such as potable water and sewage networks, and presents the belief that the construction of these urban facilities should be conducted by the residents themselves. It therefore contrasts with the site and service strategies, as governmental authorities should not intervene in any of the processes of the development of the community. Choguill (1999) reinforces the idea that houses can be built by the local residents and can be upgraded gradually, but he adds that similarly to houses, urban infrastructure can also be developed progressively over time. Nevertheless, it is fundamental to secure the builders with regards to the land tenure, so they can reap the benefits of their efforts for at least a foreseeable future. This concern applies for both house and residential infrastructure, when they are developed based on a progressive – or incremental – self-help approach.

Housing Cooperative

A housing cooperative is a non-profit organisation, owned by its member shareholders (Kenn 1995), with the aim of producing cost price housing (Garner 2014). One of the core principles of a housing cooperative is that all tenants are members, and all members are either tenants or prospective tenants, in a fully mutual form (Clapham & Kintrea 1994). One of the benefits of a cooperative is the

fact that shareholders who are unable to obtain credit for mortgage individually, can receive financing through the cooperative (Kenn 1995). However, one of the core concepts of a cooperative is that the shareholders do not own the property; instead, they lease their home (Brockington, Raymond et al. 1983).

There are numerous models of housing cooperative, adopting various degrees of self-help. In countries like Uruguay, for instance, where cooperatives are known to be part of the housing provision since 1870 (Loureiro 2013), the most successful types are the so-called mutual help cooperative (Oliveira Filho et al. 2017). In this model, the shareholders typically build their houses themselves, with the guidance of a professional with technical knowledge of construction, contracted by the cooperative. Amongst the benefits of this model, are the fact that the final cost can be up to 30% lower than through the private market, as it reduces the labour cost; and the strong bonds that can be created between the residents and their house, during the construction process (Ramos 2007).

In Brazil, the first self-contained housing cooperatives, i.e. independent from governmental resources and administration, emerged in the 1990s (Castro & Shimbo 2010). Nevertheless, as there were no subsides from the government, the instability of the economy led to cooperatives demanding an initial financial contribution before construction (Vieira et al. 2003). Moreover, a minimum income was required to be part of the cooperative. Cooperatives therefore have excluded families with low income, resulting in their members being composed only of middle-class families (Castro & Shimbo 2010; Vieira et al. 2003).

The level of state intervention in housing development based on self-help

In order to identify an ideal degree of intervention from the government in schemes based on self-help approaches, it is important to understand the whole process of housing development. Greene and Rojas' (2008) study furnishes a breakdown of this process, with a focus on progressive improvement model, by dividing the process in three phases, whereas the first is land access; the second is development of a basic housing core; and the third is incremental improvements of the houses. The access to land is the primary concern in the development of housing, as the low-income families are rarely able to afford it from the private market and often resort to illegal land occupation, resulting in informal settlements in the city. Therefore, it is fundamental to provide mechanisms that facilitate the access of land for the low-income people. Once the land is arranged, the next

concern, or phase, is with the construction of the housing nucleus. This stage concerns the provision of the minimum features a building must have to house people. In this phase, the construction cannot yet be seen as a house, but basically as a shelter for its dwellers. Afterwards, there is the stage when the households will adapt the buildings according to their own needs, named by Greene and Rojas (2008) as incremental improvements of the houses.

Considering the three separate phases presented above, it is possible to delineate a different degree of state intervention in each stage of the process. The first stage demands a greater help from the government, as low-income people encounter difficulty with regards to access of land through the private market. The intervention can be either through legislation that can protect the land from real estate speculation or through provision of plots by the creation of land subdivisions, such as in the site and services programmes. The second phase should have the participation of both the government and the households. The provision of a housing unit should not be fully conceived by the residents, as those people might not have enough income to afford buying the construction materials to build. Furthermore, they may not have technical knowledge to construct, which could result in dwellings with precarious construction standards. In this stage, the governmental support could be either through subsides to help people to buy the material to build or to provide them with technical support to help in the dwellings' construction; also, a third alternative would be for the government to construct basic and low-cost housing units, to shelter the people. Improvement of the houses, the third and last phase, should be carried out mostly by the households. The state intervention would only be concerning financial support, but the process of planning and construction of the improvements should be fully led by the households (Greene & Rojas 2008; Western Cape Department of Human Settlements and Sustainable Human Settlements CityLab 2013) (see Figure 3-16).

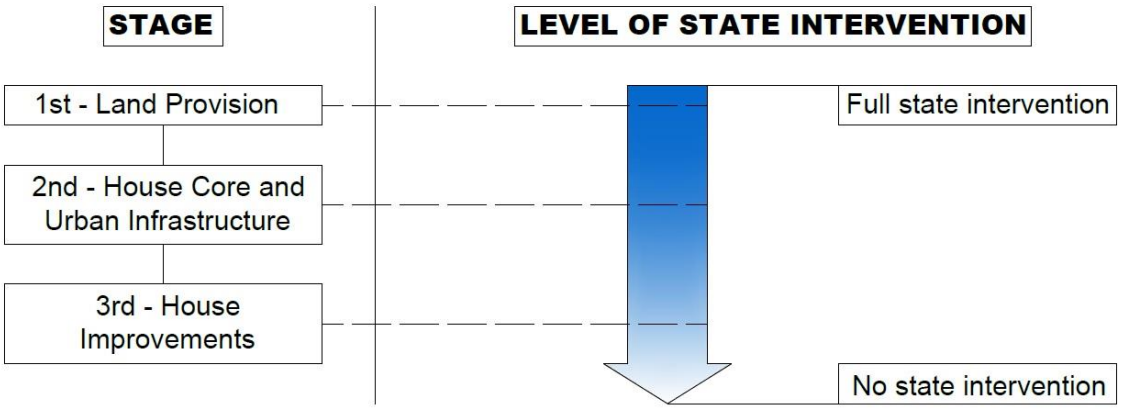


Figure 3-16 – Diagram showing the distinct stages and level of state intervention in in the housing development.

1st Land Provision:

- The access to land is the primary concern in the development of housing, as the low-income families are rarely able to afford it from the private market and often resort to illegal land occupation, resulting in informal settlements in the city;
- The intervention can be either through legislation that can protect the land from real estate speculation or through provision of plots by the creation of land subdivisions, such as in the site and services programmes.

2nd House Core and Urban Infrastructure

- This stage concerns with the provision of the minimum features a building must have to house people;
- The provision of a housing unit should not be fully conceived by the residents, as those people might not have enough income to afford buying the construction materials to build;
- Residents may not have technical knowledge to construct, which could result in dwellings with precarious construction standards.

3rd House Improvements

- Improvement of the houses should be carried out mostly by the households;
- The state intervention could provide financial support, but the process of planning and construction of the improvements should be fully led by the households.

3.4 Conclusion

This study has furnished knowledge about the different components of community and home, and the relevance that they have in the lives of people. The term community presents multiple interpretations. Researchers who approach this theme point to the imprecision in the definition of this term, especially within the social sciences fields. Moreover, the numerous interpretations presented by scholars reinforce the idea of impossibility in finding a definitive and precise definition for the word community. It has been possible, however, to conclude that the main characteristics found in these studies express notions that could become important to the contribution of this work.

Seen initially as a small group or locality, the definition of community has developed over the years, and it has gained more complex and comprehensive interpretations. It is no longer seen simply as a village or a small town, but has been recognised in its different variations. Since Hillery's work, which has been a remarkable contribution to the studies of community, it has been clear that investigations about this theme are often carried out through three main branches: locality, common ties, and social interaction. A community can contain either these three items together or at least one of them. It can be based on common bonds or locality or both at the same time and it can present social interaction amongst its members.

Researchers who investigate community based on geographic area often use neighbourhood as their main tool of study. As shown in this work, a neighbourhood present the characteristics to be considered a community based on territory. It was found that a neighbourhood can be divided into layers, having an individual's home as the reference point. The different scales of a neighbourhood present distinct levels of social systems and interaction. Neighbourhoods can also contain different attributes, from geographical to structural, presenting different degrees of boundary.

The studies about communities associated with common bonds, showed that a community could also be simultaneously based on locality and on common ties. It was shown that members of relational communities, which are those based on common interests, can present different degrees of interaction in comparison to territorial communities. It was also found that relational communities are more often developed than the ones based on locality. Thus, it is possible to understand that people tend to prefer to make part of a community with people that possess similar beliefs, values, and other interests.

Social interaction and sense of community, which are major subjects in the field of community studies, are strongly connected, and one can even be a consequence of the other. As identified in this work, the social interaction of an individual in his or her community is related to the social variables of the community and it can affect his or her sentiment of attachment. It was found that people from particular age groups, gender and income present distinct levels of social interaction and sense of community. Nevertheless, it was also discovered that the reason for these distinctions could be related to mobility. Limited or easy mobility can explain the relation between certain social variables and consequences in the willingness of an individual to develop social interaction and sentiment of attachment to a place. For instance, older and poorer people tend to present a higher level of social interaction due their limited mobility.

Finally, in presenting ideas about intentionally promoting a sense of community, stimulating social interaction is clearly a significant way of developing the sentiment of attachment. There is a polarisation of views about how to achieve the changes in social interaction. While social scientists tend to argue that intervening on the social variables is the most effective means; planners claim that the physical elements of a neighbourhood cause the most significant impacts. The study has discussed approaches involving mixed income communities, which is a common tool used in the social interventions of communities. It has also presented about interventions on the physical environment of a community. Being either through social or physical interventions, the importance of this study has been to demonstrate that it is possible to develop community artificially and that this type of intervention could have an impact of the quality of life of people.

The studies about home have demonstrated the differences between house and home, whereas house is a space and home is a place. For a better understanding of this dichotomy, it has also presented a study about the meanings for space and place. It has then been possible to conclude that a space is only a physical environment and a place is that environment but with meanings to an individual or to a group, which means that a place is a space involving people. As it involves people, then a study about the human needs has also been carried out. The investigation about human needs was mainly based on Maslow's (1954) hierarchy of priorities for human needs. Through that study, it has been possible to identify the

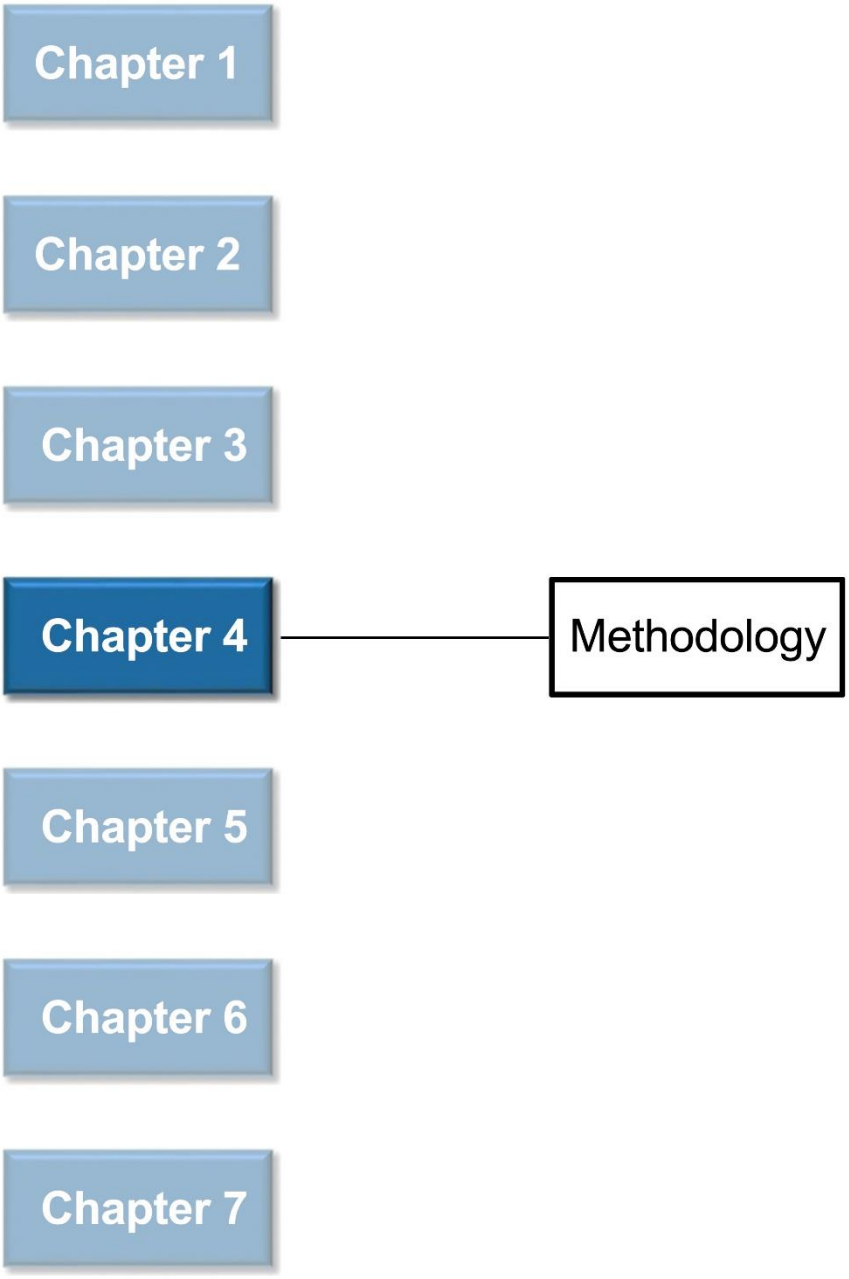
main elements that are applicable to a residential context, and to discover what components are necessary to transform a house to a home

The study about the interpretations for space, human needs and place are also applicable to the context of communities, as these three elements are common basis for the development of both home and community. Based on the study about community, it is obvious to associate sense of community to sense of place, as the former is related to the sentiment of attachment and identity of a specific locality and to the recognition of this sentiment, which is similar to the meanings for sense of place. Seeing this, the study has shown how strategies based on each of these three elements – people, space, and place, operates and what the expected outcomes of each approach are. Through the comparison of these three lines of home and community development, it has been possible to conclude that a place-based strategy is the most appropriate when the aim is to develop communities and to create homes.

In an attempt to investigate strategies of community development based on place, a study about self-help approaches has also been conducted. The line of social housing development based on self-help provides an approach where the contribution of the households is indispensable for the process of developing their homes. This strategy is a response to the failures produced in the houses developed based on top-down approach. Thus, this model is supported by the idea that the residents can meet their own needs. Moreover, it is argued that social housing built based on self-help can have economic benefits, as it excludes the profit from the construction companies and it has lower expenses with labour.

Although social housing delivery based on self-help may present a range of benefits, there are aspects of this approach that require particular attention. One of these points is with regards to the security of land tenure. This issue is emphasised by numerous scholars as a key feature for the success of the development based on self-help. The engagement of an individual can be narrowly related to his or her land ownership. Therefore, the programmes must ensure people with the land tenure for the successful of the schemes. As presented in this work, this security can be achieved through different methods, such as through land legislation or through provision of land by the government. The method should be selected in accordance with what best suits the area where the programme is applied.

Another important aspect is related to the level of governmental intervention in the housing development. Scholars suggest that the state support should start off greater at the earlier stage and should be fully conducted by the residents at the final stage. The reasons for this differentiation of help between the first and the last stages are clearly settled, as people might not have enough income or technical knowledge to initiate the development of a community but they can be the best producers of the latest improvements of their own homes, as they might know better their needs and can leave their houses with their own identities. However, it is in the intermediate stage that the question is raised. As suggested in this work, the government could provide a basic housing core, so people could have a shelter without needing to use their savings. However, the architectural design of those houses is a crucial point for these cases, as this strategy could have a similar result to the current top-down based social housing developments. Thus, when adopting this strategy, the design of the houses should be prepared to receive the possible improvements that might emerge in the following stages.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Chapter 4: Methodology

This chapter aims to identify the research philosophies, approaches and methods to respond to the research questions. It is through the methodology that the type of data collection will be decided and how this procedure will occur. The methodology of this research will be shaped based on the research problems and on the theoretical framework that has been established in the previous chapters. Therefore, it will focus on the past and present situations of the social housing developments in the city of Campo Grande, and on the applicability of the concepts of community and home to that scenario. This section will present the different types of philosophies and approaches and select those that are the most suitable for the methodology of this work.

4.1 Types of Research Philosophy

The philosophy of a research can be understood as a philosophical orientation of the inquirer, which is applied to his or her research. This philosophy is usually developed based on the researcher's knowledge and experiences towards the approached discipline and the inclinations of his or her supervisor (Creswell, 2014). The research philosophy is approached with distinct terminologies. Such as paradigms (Mertens, 2010), epistemologies and ontologies (Crotty, 1998), broadly conceived research methodologies (Newman, 2009) and worldview (Creswell, 2014), which is described by Guba (1990, p. 17) as a 'basic set of beliefs that guide action'. Five major approaches of research philosophy have been identified – positivist and postpositivist, interpretivist, constructivist, transformative and pragmatic. The type of philosophical orientation adopted to the inquiry has implications on the strategy which will be used in the research. Each philosophy is usually related to a research approach, either quantitative, qualitative or mixed. Therefore, it is fundamental to establish the philosophical orientation of the research to decide the strategies which will be used in the inquiry.

4.1.1 The Positivism and Postpositivist Philosophies

The positivism philosophy is related to empirical science (Crotty, 1998). It has an assumption that social phenomena can be investigated through observations on the relation between cause and consequence of actions (Henn et al, 2006). Positivists believe that every question can be responded through a scientific answer (Hanfling, 1981), and they are convinced that scientific knowledge is accurate (Crotty, 1998).

While positivism presents this traditional idea of absolute truth of knowledge (Phillips & Burbules, 2000), the postpositivism, on another hand, recognises that it is not always possible to be positive about claims of knowledge when studying the behaviour and actions of humans (Creswell, 2014). Like in positivism, the postpositivists study the relation between causes and their effects. They identify and assesses the causes through analysis. Creswell (2014, p. 7) states that 'the knowledge that develops through a postpositivist lens is based on careful observation and measurement of the objective reality' and that 'developing numeric measure of observations and studying the behaviour of individuals becomes paramount for a postpositivist. Finally, there are laws or theories that govern the world, and these need to be tested or verified and refined so that we can understand the world.' In practice, the inquirer starts with a theory, collects data that could either confirms or disproves the theory and finally makes revisions and additional tests (Creswell, 2014).

4.1.2 The Interpretivist Philosophy

Interpretivism has emerged as a counterargument to the concept of positivism. It rejects the idea advocated by positivists that a social phenomenon can be explained by the investigation of cause and consequence; instead, it argues that to understand the social world, it is crucial to understand and view from the perspective of the people being studied (Weber, 1949). Interpretivists believe that reality is developed through a social construction (Husserl, 1965). They state that meanings are fundamentally dependent on consciousness, perspectives and interpretations. The interpretivist research is deep and aims to investigate meanings within a socially constructed reality. Although this approach has the advantage of providing a contextual depth, its reliability and representativeness are questionable (Kelliher, 2005).

4.1.3 The Constructivist Philosophy

The constructivist philosophy has arisen from authors such as Berger and Luckmann (1929) and Lincoln and Guba (1985). In constructivism, there is a belief that individuals try to understand the environment in which they live and work. Social constructivists believe that people develop subjective meanings based on their own experiences. These meanings can vary, which leads the inquirer to observe the comprehensive complexity of different views, instead of narrowing meanings into a few categories or ideas. In practice, the researcher needs to rely on the view of the

participants in the situation being investigated. These subjective meanings are usually extracted from the participants through open questions. The questions developed directed to the participants must be broad and general for the participants to build meanings of the situation. In addition, social constructivists recognise and investigate the importance that the social, cultural and historical contexts have in the experiences of an individual. The researchers also acknowledge that their own backgrounds, such as their personal, cultural and historical experiences, can shape their interpretations. In sum, they aim to interpret the meanings people have about the world and construct a theory or pattern of meanings through these interpretations, instead of beginning with a set theory, as in the postpositivist approaches (Creswell, 2014).

4.1.4 The Transformative Philosophy

The transformative approach is advocated by scholars such as Fay (1987), Heron and Reason (1997), Kemmis and Wilkinson (1998), Kemmis and McTaggart (2007) Mertens (2010) and Mertens (2009). In this philosophy, there is a belief that the research needs to be linked to politics and political issues and to overcome social problems (Mertens, 2010), focusing on marginalized groups and operating an action agenda to overcome issues such as empowerment, inequality, oppression, domination, suppression and alienation. Creswell (2014, p. 10) states that the transformative world ‘focuses on the needs of groups and individuals in our society that may be marginalized or disenfranchised. Therefore, theoretical perspectives may be integrated with the philosophical assumptions that construct a picture of the issues being examined, the people to be studied, and the changes that are needed’.

4.1.5 The Pragmatic Philosophy

The pragmatic worldview is approached by authors such as Murphy (1990), Patton (1990), Reason (2003) and Rorty (1990). Pragmatisms arises out of the analysis of ideas and actions (Reason, 2003) and operates through applications and solutions to problems (Patton, 1990). In this approach, the inquirer should focus on the research problems and adopt all the strategies available to understand the problem, rather than emphasizing the methods (Creswell, 2014). Therefore, as defended by Morgan (2007), Patton (1990), Tashakkori and Teddlie (2010), it is important to focus on the research problems and adopt multiple strategies and methods, in order to obtain knowledge about the problem.

4.2 Types of Research Approach

There are three research approaches within the research field, which are quantitative, qualitative and mixed methods. Quantitative and qualitative methods are not opposite to each other; instead, they can be closely related (Newman & Benz, 1998), while mixed methods research adopts elements of both qualitative and quantitative approaches (Creswell, 2014). An inquiry also contains distinct research designs. Research design, which can also be called strategy of inquiry (Denzin & Lincoln, 2011), is a type of study within each of the three research approaches – quantitative, qualitative and mixed methods. Research designs can furnish specific directions for procedures in an inquiry

4.2.1 Quantitative Research

This approach is used to test objective theories through the examination of complex relationships among variables (Creswell, 2014; Yu, 2005). These variables are believed to be able to explain the human behaviour (Horna, 1994). Through the quantitative approach, these variables can be measured so the data can be analysed using statistical methods (Creswell, 2014). This type of strategy aims to develop factual knowledge using objective methods, in which the data can be numbered and statistical data can be collected. The quantitative approach can avoid the influence of the researcher's own perspectives, values and experiences to the outcomes (Matveev, 2002), which also avoids biased judgements, as it filters out any possible subject external influence to the results (Shuttleworth, 2008). In this strategy, the data is replicable in different forms and the statistical data can be comparable. The methods adopted in quantitative approaches usually incorporate the use of instruments, collect statistical data and adopts closed questions to raise quantitative hypothesis. The final written report of a research based on a quantitative approach has a set structure, consisting of introduction, literature and theory, methods, results and discussion (Creswell, 2014). In sum, quantitative researchers have assumptions about testing hypothesis deductively and use objective methods to test their theories and avoid subjective interference to the results.

Quantitative Research Design

Creswell (2014) has identified two major inquiry strategies with the quantitative approach, which are survey research and experimental research. In survey research, a sample of a certain group of people are investigated in order to furnish a quantitative, or numeric, portrait of trends, attitudes and opinions of that group.

The methods of the survey research incorporate cross-sectional and longitudinal studies, collecting data through questionnaires or structured interviews. The result of this design will be interpreted by generalizing the sample to the group (Fowler, 2009).

The experimental research is adopted when there is an intention to discover if a certain treatment can influence a specific result. In this design, the inquirer evaluates this possibility by furnishing a certain treatment to a group and withholding from another; afterwards, the researcher should compare how each group scored on a result (Creswell, 2014).

4.2.2 Qualitative Research

Creswell (2004, p. 4) describes qualitative approach as a strategy 'for exploring and understanding the meaning individuals or groups ascribe to a social or human problem'. Qualitative approaches focus on people's experiences and the meanings people attribute to different elements of their lives. It investigates their assumptions, perceptions and presuppositions and how these items connect to the social environment surrounding them (Van, 1977). The methods used in qualitative approaches are usually interviews, open questionnaires, ethnography, case study and action research, in which the researcher collects data from the perceptions of the participants. Therefore, qualitative strategies have the benefits of providing a richer and deeper data about the subject in comparison to the quantitative approach. However, as the data collected is usually subjective, they rely on the interpretations of the researchers to the meanings of the data, which can lead the results to be influenced by the researcher's views and values (Holt, 1997). The final written report of a research based on a qualitative approach has a flexible structure (Creswell, 2014) (see Table 4-1).

Table 4-1 - Table comparing qualitative with quantitative approaches.

Quantitative research	Qualitative research
Objective	Subjective
Theoretical assumptions	Philosophical assumptions
Uses numbers	Uses words
Closed questions (quantitative hypothesis)	Open questions (qualitative interview questions)
Tests objective hypothesis by examining the relationship among variables	Explores the meaning individuals or groups ascribe to a social or human problem
The data can be measured through statistical procedures	The data is usually analysed through interpretations of the researcher
The final written report has a set structure	The final written report has a flexible structure

Source: This Author, based on Creswell (2014).

Qualitative Research Design

Five main inquiry strategies have been identified within the qualitative approach, which are narrative research, phenomenological research, grounded theory, ethnography and case study.

Narrative research is about studies of lives of groups of people. In this case, the individuals of a specific group are required to provide stories about their own lives to the inquirer (Riessman, 2008). The story is interpreted and reorganised and paraphrased by the researcher, who usually translates this into a narrative chronology (Creswell, 2014). The final work usually has influence from both the stories told by the sample participants and the values and experiences of the researcher, resulting in a collaborative narrative (Clandinin & Connelly, 2000).

Phenomenological research is based on philosophy and psychology disciplines. It investigates a specific phenomenon through the experiences lived by individuals. The methods are usually interviews, through which the researcher identifies the form the participants experience that certain phenomenon (Giorgi, 2009; Moustakas, 1994).

Grounded Theory is based mainly on sociology and is described by Creswell (2014, p. 14) as a design 'in which the researcher derives a general, abstract theory of a process, action or interaction grounded in the views of participants'. The data is collected, analysed and reviewed, and the information provided through the data collection will be grounded into distinct categories (Charmaz, 2006; Strauss & Corbin, 1998).

Ethnography is related to anthropology and sociology. This system investigates the culture of a group of people, in which the inquirer studies the patterns of behaviour, language and actions of those people. The data collection usually takes places in the natural setting of the group, as it presents the perspective of the participants. These methods typically involve observations and interviews (Creswell, 2014).

Case Study can be related to various disciplines, including anthropology, sociology, psychology, political and life sciences. There is a range of different types of subjects of study that can be investigated in this design, such as a group of people, an object, a place, a circumstance or an argument. It is characterised by involving an in-depth, detailed and up-close investigation of the subject of study. The procedures for data collection in this category can vary in accordance with the circumstances (Stake, 1995; Yin, 2012).

4.2.3 Mixed Methods Research

Both approaches quantitative and qualitative researches present their own weaknesses (Amaratunga et al, 2002). While quantitative research can provide only superficial data, lacking deeper information, qualitative approaches also present failures, such as the ones listed by Richards and Richards (1994) - volume of data, complexity of analysis, details of classification record and flexibility and momentum of analysis. Nevertheless, as previously discussed, both approaches also present strengthens. Quantitative approach can be faster, have a lower cost and cover a larger population, while qualitative furnishes greater knowledge about people's meanings and ideas (Amaratunga et al., 2002). As the name suggests, mixed method research is an approach that mix both methods, collecting qualitative and quantitative data and integrates the two forms of data, incorporating distinct designs that may involve philosophical assumptions and theoretical frameworks. The main assumption of this strategy is that the combination of qualitative and quantitative approaches provides a more comprehensive understanding of an inquiry problem than either approach isolated (Creswell, 2014). The use of multiples strategies brings the advantages of capitalising the benefit of each approach and compensating their weaknesses (Spratt et al, 2004).

Mixed Methods of Research Design

Mixed methods of research design usually integrates research strategies found in the qualitative and quantitative researches. Convergent parallel mixed methods,

explanatory sequential mixed methods and exploratory sequential mixed methods have been identified as major mixed methods designs.

In the convergent parallel mixed methods, the inquirer converges quantitative and qualitative methods and merges the data in order to furnishes a comprehensive assessment of the research problem. The researcher uses both qualitative and quantitative forms of data collection and they should be conducted at the same period; afterwards the information collected is integrated in in the interpretation of the overall outcomes (Creswell, 2014).

In the explanatory sequential mixed methods, the inquirer carries out a quantitative research, analyses the data, and based on the analysis qualitative research is planned in order to explain and provide more details about the information collected on the quantitative data. This design is sequential, as it has to be conducted in two phases, as since the qualitative research can only begin with the conclusion of the quantitative research. This method is more focused on quantitative data, and the qualitative research in this design is mostly to explain the data extracted from the quantitative research (Creswell, 2014).

The explanatory sequential mixed methods is also divided in two stages, but in this case, it initiates with the qualitative research and then a quantitative research is conducted. The objective of the qualitative research in this design is usually related to an attempt to build instruments to be used in the quantitative research or to narrow variables for the quantitative data collection (Creswell, 2014).

4.3 The Strategy for the Research

The aim of this research is to identify the gaps of knowledge regarding the perspectives and needs of the residents of the studied social housing developments in relation to the place where they live. The theoretical framework of this work has shown that the notion of home and community transcends a simple set of physical elements composing a built environment. Therefore, the investigation will include views of the residents in regarding of both the house and the community in which they reside. It will evaluate the possible impacts of that environment in their lives and how their life styles, habits and needs might have interfered in that environment. Thus, it will investigate a relationship between cause and consequence in this scenario, followed by a profound analysis on the findings and by an in-depth research on the human aspects of this phenomenon. In addition, the research also aims to discover whether there is any divergence between what has been planned by the national government and local authorities to these developments and what has in fact been accomplished. In the case where divergences are found, the research will focus on investigations about the challenges and barriers that might have caused the divergences.

Based on the aims of the research and on the types of research philosophy that have been studied, this research will adopt mainly positivist and postpositivists characteristics. These philosophies are suitable as they can complement one another. In the positivism, reality is seen as a solid and measurable element. The subject of positivist studies are usually objectives, which are composed of variables that can be statistically measured, through scientific and objective methods. Thus, the studied subject is independent of the view of the researcher (VanderStoep & Johnston, 2009), which then provide a neutrality and validity in the results. Postpositivism, on the other hand, focus on meanings and subjective issues. It is capable to investigate areas that are unattainable in the positivist researches.

The nature of a research philosophy itself draws the direction to a certain research approach. A research based on quantitative methods is the most suitable for the line of development of the positivist philosophy, while the qualitative research is the most appropriate for the postpositivist paradigm. The quantitative research will be important to provide an overall picture of the studied issue. It will provide precise information about the facts surrounding the problem. Therefore, quantitative research can furnish a clear view about the situation. With its neutrality and

objectivity, it can provide data with a high level of reliability and validity. Nevertheless, within studies of human sciences, quantitative data might not be enough to provide all the information necessary for the research. Some of the issues investigated concerns sentiments, meanings and experiences of people with regards to place, which cannot be comprehensively measured by quantitative methods. Therefore, the nature of the research requires an in-depth investigation for the issues that cannot be covered in the quantitative research. For this type of investigation, qualitative methods will be adopted. Conclusively, a mixed methods research will be employed, as it will adopt both methods and capitalize the advantages of each.

The data collected from the quantitative research will be the basis for the qualitative research. The quantitative data will clarify the scenario and the situation being investigated, and the qualitative research, afterwards, will seek to explain the points found in the quantitative research and/or to discover more information and detail about that subject. Therefore, the research will partially adopt an explanatory sequential mixed methods. It is explanatory because it aims to explain and investigate more profoundly the point that has been discovered through the quantitative research; and it is sequential because it follows a specific sequence in which the initiation of a method depends on the conclusion of another. Consequently, the research will be divided in two stages, whereas the first phase corresponds to the quantitative research and the second is related to the qualitative research. However, it is only 'partially' explanatory, because the research does not aim only to test theories, but also to generate them. Part of the qualitative data will help to explain and probe the possible theories raised by the quantitative data. Nevertheless, part of the qualitative research also aims to discover new theories through qualitative methods. Therefore, the research strategy will also be exploratory. Having set this, it is conclusive that it will be necessary for the inquiry to incorporate distinct research designs. The quantitative approach will adopt surveys, followed by an explanatory qualitative data collection, while new theories will be generated by qualitative data collected through a grounded theory design.

4.3.1 Survey

Survey is a strategy of research, which is usually adopted when the aim is to discover specific information about a certain group of people. Surveys can be useful to provide precise and objective information about a group of individuals, such as

who they are, what they do and what they think. As the results of the data collection from the surveys will be generalised for a whole group, then the samples selected must be of a large number of people, which could be able to represent the totality of the group being investigated. As the surveys cover a large number of people which will represent a whole group, it should focus on the collection of general and objective information. The researcher has to know in advance precisely the type of information that he or she aims to collect from the surveys (Denscombe, 2010). For the samples of the surveys, a large number of residents of social housing developments located in different regions of the city and built in different periods will be selected.

4.3.2 Case Study

Gerring (2004) points out that there are the numerous interpretations of the concept of case study, such as the one presented by Yin (2003), that a case study can be participant-observation, ethnographic, in the field, or clinical; and that it uses qualitative methods. Campbell & Stanley (1963) and Eckstein (1992), discuss that a case study investigates only a single event; or by George & Bennett (2004), that the research is defined by tracing a process. As an alternative to the distinct interpretations, Gerring (2004) and Zainal (2007) define case study as an intensive and in-depth investigation of a particular unit or event, for the purpose of understanding similar units at a larger scale. According to Yin (2012), a case study is used when the questions of the research are “how” and “why”; the researcher has no control over the behavioural events of the study; and the phenomena of the investigation is occurring in the present, rather than carrying out studies of past events.

There are numerous designs for a case study, the most commonly used being descriptive, exploratory, explanatory, single-case, and multiple-case. A descriptive case study is when the researchers commence their investigation with a theory to support the description of the phenomenon (Zainal, 2007). These case studies can be formulated in a narrative form (McDonough & McDonough, 1997). Exploratory, on another hand, has an open-ended approach, which helps to explore further the phenomena being investigated. It is usually adopted where there is a lack of clear evidence or single outcome in the research; this case study is adopted when the researcher aims to identify an explanation for the anticipated causal connections in real-life interventions, where these are considered of great complexity for a survey

or experiment (Yin, 2003). Single-case studies are adopted when there are no other similar cases available for replication, which brings limitations to the study, as it is not capable of providing generalised conclusions. Finally, multiple-case investigation has the benefit of being capable to identify a number of evidence sources from events through replication, rather than relying only on one sample, which improves the level of confidence for the research (Zainal, 2007). Multiple-case studies can utilise replication by linking a variety of information from the same case to a theoretical framework (Campbell, 1975).

This research will adopt multiple-case studies. Each of the six social housing estates will be a single case study, which will be investigated based on the same format of research applied to all the estates. The results of the data collection for each housing estate will be analysed and compared against one another, where similarities and differences found in both the results and the characteristics of each case study, will help to provide information on the causes of the phenomena, and to support the outcome from the data collection.

4.3.3 Grounded Theory

The Grounded Theory has primarily arisen from the work of Glaser and Strauss (1967). Although initially developed as a design that could incorporate both qualitative and quantitative methods, it has recently been more associated only with qualitative researches. In Grounded Theory, the researcher aims to discover new theories, instead of testing them. While in some approaches it is usual to set a theory and collect data to prove if the theory either applies or not, the Grounded Theory strategy operates in the reverse. The theories are generated out of empirical research, instead of using empirical research simply to test theories (Denscombe, 2010) It is therefore linked to an exploratory qualitative data collection. Thus, it requires a smaller scale for the samples. The participants of the Grounded Theory research will also be residents of the social housing developments. However, there will be a smaller number of participants, as deeper information is aimed to be collected, which requires more time and thus needs to be conducted with a smaller number of people.

4.3.4 Sampling and Size

Sample is a selected portion of a studied group or population within a research. In research, the term population refers to the individuals that are being investigated, while a sample represents a portion of people of this group who have been selected

to participate in the research and who can represent the totality of people being studied. A population of research does not represent the totally of a city, region or country where it is located, but only the specific group which is the focus of the research. For instance, the population of this research is composed of the residents of the social housing developments of the city of Campo Grande. That population does not represent the totality of inhabitants of that city. Nevertheless, the sample of the study, which is composed of a portion of these social housing residents, represents the totality of the investigated population. The idea of sampling within a survey is to reduce time and money by selecting just a portion of a population instead of analysing the whole group. Researches that select every individual of a studied population are likely to be more expensive and time consuming in comparison to those that utilise only samples of the investigated groups. Although the sample of a survey does not cover the whole studied population, its results represent similar levels of accuracy (Denscombe, 2010).

According to information provided by the city council of Campo Grande, there are 74 social housing developments in Campo Grande, built between 2005 and 2014, and 3 other developments under construction, with a total of 19,348 housing units built between 2005 and 2014. The houses have been built through various programmes over the years, being sponsored either by the municipal, state or national government, depending on each scheme. Nevertheless, the national programme called *Minha Casa Minha Vida –MCMV* (My House My Life) has become the main social housing programme in Campo Grande since 2012, and is currently the only scheme developing social housing in the city. The first social housing developments built through this programme were concluded in 2011. However, since 2007, the national government has become majority in the development of social housing in Campo Grande. Since 2008, all of the social housing developments have been built through the national government, with the municipal authorities coping only as manager and enablers of the social housing schemes. The national bank responsible for the majority of the social housing developments built under the national programmes is the bank CAIXA.

The samples will be based on the developments built through the MCMV programme, as this is currently the only scheme through which social housing has been developed in the city. There are six social housing developments built through this programme between 2011 and 2015, with a total of 3,021 houses.

Sample Size Calculator

The sample size is calculated using the statistical model based on normal distribution. The calculation is done is two parts, initially for an infinite/large population, secondly it is corrected for a finite population (Cochran, 1977). The principle information required, initially, is the Confidence Level (z), and the Margin of Error (c); the confidence level is the associated z value from a normal distribution [$X \sim N(0,1)$], where the area under the curve is taken symmetrically about z = 0, and represents the percentage a random sample will fall into that category. For example, with a 95% (z=1.96) confidence level, it is possible to statistically assume that 95% of the results collected are in line with population data, likewise for 99% (z=2.58) (Clapham & Nicholson, 2009). Margin of error is the acceptable level of uncertainty in the sample data (Clapham & Nicholson, 2009; Scheuren, 2004). This can later be applied as a significant percentage in the data collection; for instance, if 45 people out of 100 people answer yes in a survey, it is possible to affirm that the observed result is 35-55% (45%±10%). The formula below (Cochran, 1977) shows that there is also a p value; this is the attribute proportion in the population: this is taken as p=0.5 (50%) due to the sample being totally within a predefined attribute – social housing (see Figure 4-1).

$$s_\infty = \frac{z^2(p)(1-p)}{c^2}$$

Figure 4-1 – Formula for infinite population sample size.
Source: Based on Cochran (1977).

Working with a 95% confidence level, and margin of error of 10%, the infinite population sample size is 96 (see Figure 4-2):

$$s_\infty = \frac{1.96^2(0.5)(1-0.5)}{0.1^2} = 96$$

Figure 4-2 - Example formula for infinite population sample size
Source: Author.

Secondly, this needs to be adjusted to suit the population size. This is done by determining the percentage of population represented by the sample – reduced by 1, and then dividing the infinite population sample size by the percentage +1, as shown below (Cochran, 1977) (see Figure 4-3).

$$s_n = \frac{s_\infty}{1 + \frac{s_\infty - 1}{n}}$$

Figure 4-3 - Sample size correction for finite population.
Source: Based on Cochran (1977).

Considering the population size of the social housing estate 1, Joao Alberto Amorim, for instance, the sample size would be 72 (see Figure 4-4):

$$s_{292} = \frac{96}{1 + \frac{96 - 1}{292}} = 72$$

Figure 4-4 - Example sample size for social housing estate 1, Joao Alberto Amorim.
Source: Author.

A comparison was carried out on the sample sizes for the infinite population, using different combinations of confidence levels (90%, 95% and 99%) with margins of error (1%, 5% and 10%), as shown in the table below (see Table 4-2):

Table 4-2 - Infinite population sample size comparison

s_∞		c		
		1%	**5%**	**10%**
z	90%(1.64)	6 764	271	68
	95% (1.96)	9 604	384	96
	99% (2.58)	16 587	663	166

Source: Based on (Scott & Lindley, 1995).

Due to the size and scope of this study, it was decided to use a 95% confidence level with 10% margin of error, in order to make the data collection feasible; as over all the estates, around 15% of the houses (464) will be assessed, in comparison to 53% (1,607 houses), if a 99% confidence level with a 5% margin of error was adopted (see Table 4-3).

Table 4-3 - Sample size of each social housing development.

Housing estate	Number of houses	Year	Sample Size
Nova Serrana	213	2011	66
Vila Fernanda	860	2012	86
Joao Alberto Amorim	292	2013	72
Jose Maksoud	482	2014	80
Ary Abussafi de Lima and Gregorio Correa	315	2014	74
Celina Jallad	859	2015	86
TOTAL	**3,021**	**-**	**464**

Source: City of Council of Campo Grande and Creative Research System Sample Size Calculator.

4.4 Methods for the Research

The research methods are the techniques that the researcher can use for the data collection. The selection of a method is usually linked to the planned strategy for the research. Each research strategy usually leads to a specific method. Surveys traditionally suggest the use of questionnaires, while grounded theory is usually liked to interviews. Besides questionnaires and interviews, the nature of this work also requires a view on the plans and observation of the studied sites. Therefore, these are the four methods that will be adopted for the methodology of this research – collection of plans, questionnaires, interviews and observation.

4.4.1 Plans Collection

The observation of the plans will be the first stage of data collection. It provides a broad view of the scenario to be investigated. The plans to be used include a map of the city of Campo Grande, showing the location of the housing developments, the Municipal Urban Development Plan of the city, a map with the public services surrounding the housing estates, a plan of the blocks and streets of the developments, and the architectural plans of the houses.

The Municipal Urban Development Plan of the city provides a zoning map with guidelines about where the new social housing developments should be built. It has zones of social interests, zones of restrict densification, zones of cultural interests and zones of environmental interests. The social interest zones are areas of priority consolidation, which are located in the periphery but integrally linked to the urban fabric of the city. They are areas which can provide easier facilities of mobility and development of urban infrastructure. Therefore, that is the zone which the municipal guidelines propose as the area in which the social housing developments should be built. With this document, it will be possible to analyse whether the social housing developments investigated are located in the zone in which it should be.

The architectural plans of the houses will also be analysed through a paper with technical standards for social housing of the national bank CAIXA, which sponsors most of the programmes. The technical standards for social housing provided by CAIXA is a start point for the designers of the social housing developments. It sets rules of minimum architectural standards that the houses should have. An analysis on this document will provide information about how the national sponsor considers what the minimum standards acceptable for a house are. Moreover, it will be

possible to analyses how the construction companies have adapted to these rules – whether they have restrictively followed the minimum standards or not. For this, architectural projects of the social housing developments, with sections and elevations when necessary, will also be analysed. With this, it will be possible to analyse how the technical standards have influenced the projects of the houses. In addition, the architectural projects will be the basis for the analysis of how well the houses have met the needs of the residents. They will be used for a comparison between the projects and the possible alterations/extensions made by the residents in their houses.

4.4.2 Questionnaires

Questionnaire is a method of research used to discover information about a population, which can be analysed and interpreted for a research. It consists of a list of written questions, which should be identical for every questionnaire distributed (Denscombe, 2010). Through a set of identical questions, it is possible to determine a pattern in the studied group. For this research, a sample will be selected out of the investigated population which will represent the totality. The questionnaire will be utilised as a quantitative data collection. Therefore, the questions must be objective and precise, in order to obtain quantitative data that can be statistically analysed. For that reason, closed questions will be adopted for the questionnaires. The questionnaires will be mainly based on pre-coded answers, using mostly a five-point Likert scale, which can facilitate the data analysis. The questions will be written using an objective, clear and simple language, avoiding ambiguity, misunderstandings and biases (De Vaus, 2002). Besides the language, the type and structure of the questions must be developed in a form that it can obtain the precise answers from the participants that will contribute to the research. For that reason, the questionnaires will be submitted through several evaluations and phases of development, in order to determine an appropriate final design.

The subjects approached in the questions will be based on the main aspects identified in the study of the research background and on the theoretical framework, i.e. home, community and self-help. Therefore, the questions will cover issues from aspects of the house to the neighbourhoods of the residents. Although subjective concepts such as sense of place are usually highly associated with complex qualitative data (Geertz, 1996), which could not be measured through quantitative methods, there are lines of development within the environmental and social

psychology sciences that have attempted to breakdown these ideas into indicators in a form that they can be investigated quantitatively and then generate positivist knowledge (Larson et al, 2013). Environmental and social psychology scientists claim that it is possible to measure quantitatively issues such as sense of place through its components (Shamai & Ilatov, 2005), which are, in this case, place identity and place attachment.

The questionnaire starts with general information about the participants and his or her family, such as length of residence, number and age of residents and their employment status. The first section of the questionnaire is composed of a set of three questions about the house. The first question of this section asks if the resident has constructed any extra room or boundary walls in the house. If the answer is 'yes', the resident is asked to listed the extra rooms added. The second asks if any existing room has been altered and the third questions asks each room has been altered. The second set is composed of three questions that should only be answered when at least one of the residents of the house work, as this set concerns their daily commutes to work. The first question asks if any of the residents work in the neighbourhood; the second asks how long it takes for them to go to work; and the third asks what mean of transport they use. The next set should only be answered when one or more of the residents' study. The first question asks if any of them study in the neighbourhood; the second questions how long they take to go to their place of study, e.g. school or university; and the last question of the set asks what mean of transport these students use. The last section of questions uses a scale of one to five to determine how the residents rate certain facilities of the community, i.e. shopping facilities, public leisure places, health centres, nurseries, school, commuting facilities and community events. In the questions, one represents very bad, two bad, three medium, four good and five very good. Each of the four-hundred and sixty-four residents participating in the survey will be contacted in person, to ensure that all the questionnaires will be completed fully.

4.4.3 Interviews

Interview is a method of research to obtain qualitative data. The use of interview is recommended when the inquirer aims to explore the complexity of a phenomena. Interviews can provide in-depth and detailed information about certain subjects. They bring the opportunities for the research to interact face-to-face with the participants, and for the interviewees to talk directly and openly with the researcher.

Through interviews, the participants can speak widely and express their ideas and conceptions in details in regarding to the themes proposed by the researcher (Denscombe, 2010). Therefore, the interviews will be used to explore deeply certain subjects that require more details and also to raise new theories. The interviewees will be a sample of residents of the social housing developments and different departments of the local authorities and the national. The interviews will be recorded when permission is granted or notes will be taken when necessary. The participants will be told that confidentiality and anonymity will be guaranteed.

The questions of the interviews will focus on the themes of home, community and self-help. The first sections will contain exploratory questions about home and community. The questions will be aimed to identify the perceptions, experiences and expectations of the residents in relation to their house and neighbourhood. The questions will be mainly about basic needs, safety and sentiment of attachment. In the section about home, the residents will also be asked about their opinion in relation to the external appearance of the house. In the section about community, questions about symbolism will also be added. The second section, which will approach the theme self-help, will be explanatory instead of exploratory. Therefore, they will be developed based on the results of data collection of the questionnaires in regarding to additions and alterations in the house. This section will be aimed at proving and finding more details about a theory, rather than developing a new one. Therefore, the interviews will be divided in two sections. The first is based on the theoretical framework of this research, and the second on the results of the quantitative data. There will be three different types of questions for the second section. One is for those who made the major alterations in the house; other is for those who did not make any alteration; and the other is for those who gave the lowest scores for the community facilities. Six people of each housing development will be selected based on their responses for the questionnaires. They will be divided into three different groups, two participants for each group, based on their responses to answer participate to the second section of the interviews. However, the first section will be applied to all the six interviewees.

The first set of questions will be divided in two parts – one concerning the house and the other approaching the neighbourhood. The questions about the house are based on the studies about human needs. The study about human needs has demonstrated that human needs within a residential context are based on a shelter

that supplies the basic needs, safety, sentiment of attachment, status, aesthetic and self-fulfilment. Besides being a subject element, it is possible to affirm that self-fulfilment and sentiment of attachment are elements that can emerge from the fulfilment of the previous aspects of human needs. Therefore, these elements will not be included in the questionnaires. For the purpose of this study, status and aesthetic needs are classified in one category, named visual appearance, as they can be closely related. Therefore, the three aspects of human needs in the residence to be evaluated in the interviews are basic needs of a house, safety, and external appearance. There are three questions about the level of satisfaction of the residents in relation to the house in the way it has been delivered to them, i.e. before any alterations. The first is related to the basic needs; the second to safety and the third to the aesthetic.

The questions about neighbourhood in the first section are based on the studies about community. The first questions about the satisfaction of the resident in relation to their neighbourhood; the second, the participant is asked if there are places in the neighbourhood that could represent a symbol of the community; and the third asks if they feel part of a community in that neighbourhood.

In the second section, those who made the greatest alterations are asked what are the reasons for the alterations, their level of satisfaction in relation to the house after the alterations and if they considered their house as a home. The first question aims to identify the reasons that lead the residents to make alterations in their houses; the second is to discover whether they feel more satisfied with their residences once they have altered them; and the third is to compare with the responses of those who make no alteration in the house and find if they are more likely or not to feel as being their home with the alterations. Those who made no alterations are questioned what are the reasons for them not to have made alterations, if they plan to make alterations in the future and if they can consider their house as being their home. The reason for the questions are to discover if the reasons for no alterations in the houses are related to their satisfaction or for other causes, such as economic reasons. For those participants who were selected by seeing the community facilities as bad or very bad, the questions will be basically why they have those views for each of those items.

The interviews to the local authorities will help to identify their requirements in relation to the development of social housing and their challenges to implement the

Master Plan in the city, as a previous research in this work has pointed to divergences between the Master Plan of the city and what has in fact been proposed. Moreover, it will attempt to identify their views in relation to what they are planning and what they are producing in terms of social housing in the city. The interviews with the local authorities will form the third source of information to complete the triangulation of data collection.

4.4.4 Observation

Observation is a form of collecting data by watching events, behaviours, or physical setting (CDC, 2008). It has the advantage of collecting data without depending on the willingness and capability of other people (CDC, 2008; Taylor-powell & Steele, 1996). The observations can be direct or indirect. Direct observation is when the process is watched; while indirect is when the result of the process is watched (CDC, 2008),

Besides direct or indirect, observation can be either structured or unstructured. Structure observation is recommended where the aim is to gain quantitative data, as it provides standardised information, which can be numerically analysed. The unstructured open-end observation, on another hand, gives the researcher the chance of finding elements during the observation that might not have been anticipated before the data collection. Unstructured observation is used where the aim is to collect qualitative data (Taylor-powell & Steele, 1996).

For the observation to be useful and credible, it is fundamental to be recorded. There are numerous methods of recording observation, such as observation guides, recording sheets or checklists, field notes, photographs, and combinations. Observation guides have a structured format, with printed forms. This method is typically used when there are various observers in the study field, or when a comparison system is necessary. Recording sheets or checklists are used when there is a need for a standardised method of recording observation, as it can present elements such as pre-set questions or a rating scale bar. Alternatively, field notes are an unstructured method of recording observation, as there are no predetermined forms or checklists for what needs to be recorded. When observers adopt field notes, they commonly use notebooks to record the observation that they consider relevant (CDC, 2008; Lofland & Lyn H. Lofland, 1995; Taylor-powell & Steele, 1996). The photographs taken by the observer in the field can be used to illustrate the observation and may be analysed after the data collection. Finally, combinations are

when the observer uses more than one of the methods of recording observations (Taylor-powell & Steele, 1996).

This research will adopt an unstructured observation, which will be recorded through photographs and field notes. As the questionnaires and interviews will give the number of houses with extensions and alterations, the observation will provide the information of how the alterations are developed. Therefore, it will focus on houses with alterations. The houses will be selected based on the location of the people approached for the questionnaires and interviews, i.e. the streets where residents are approached will be the streets observed and photographed. Field notes will be used to add sketches or notes of the alterations observed. In addition, the public areas reserved for community hub will be photographed, as it will give the researcher an independent view of how these spaces have been used. Finally, with open-end observation, it will be possible to identify and record unanticipated aspects of the area, such as social interaction of residents on the streets or in community areas.

4.4.5 Triangulation

Triangulation is a method recommended to improve the level of validity of evaluation of data collection from multiple sources (Mathison, 1988). It helps to counter balance data collected from different sources, increasing the degree of reliability and providing a greater quality of interpretations of the results (Thurmond, 2001). The triangulation in this research will be used to compare the views of the local authorities, the perceptions and experiences of the residents, and the results from the plans analysis and observation (see Figure 4-5).

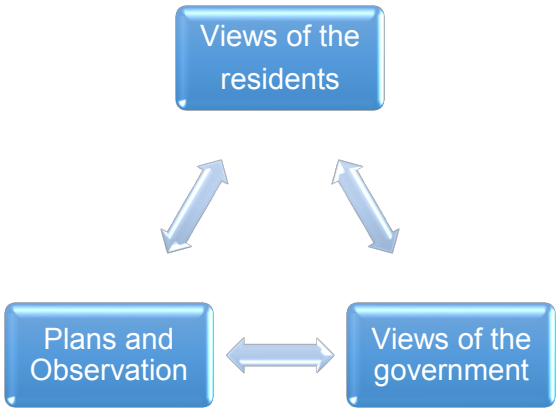


Figure 4-5 - Triangulation of data collection.

4.5 Conclusion

This chapter discusses the various forms of research philosophy, approach, strategy, design, and methods. After investigating positivist and postpositivist, interpretivist, constructivist, transformative, and pragmatic philosophies, it is concluded that the suitable philosophies for this research are positivist and postpositivist, as they can complement and balance one another. On one side, positivist philosophy offers neutrality and validity; on the other, postpositivism aims at meanings and subjective aspects.

Since positivist philosophy focuses on quantitative approach, and postpositivism usually relates to qualitative approach, both quantitative and qualitative research are adopted. The strategy for the quantitative research that this investigation utilises is case study; while the strategy for the qualitative research is grounded theory. The case study strategy is suitable for this research as it brings the possibility of applying replication, as there are six housing estates to be investigated, each being one case study. The suitability of the grounded theory is linked to the principle of exploratory design, which, alongside explanatory, is adopted in this research.

Finally, the methods for the data collection are analysis of plans, surveys, interviews, and observation. The analysis of plans provides the basis for the initiation of the process for the data collection, while the surveys offer quantitative data, and the interviews along with the observations produce qualitative data. Four-hundred and sixty-four residents participate in the surveys of the six housing estates, while thirty-six of these residents and three department representatives from the local authority participate in the interviews (see Figure 4-6).

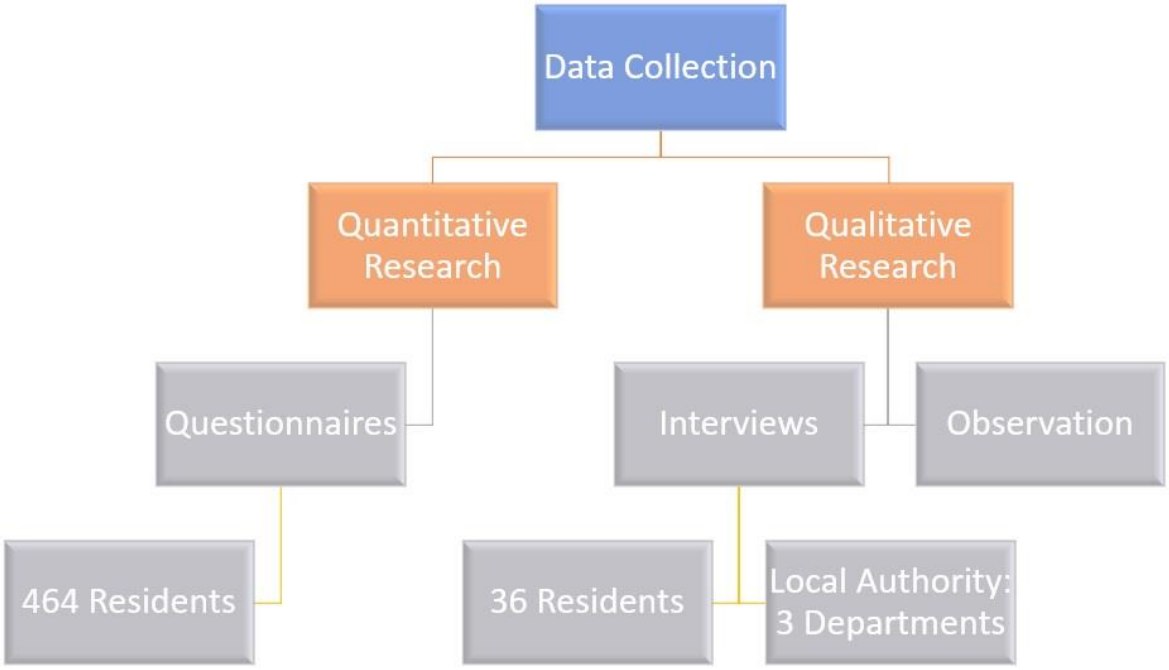
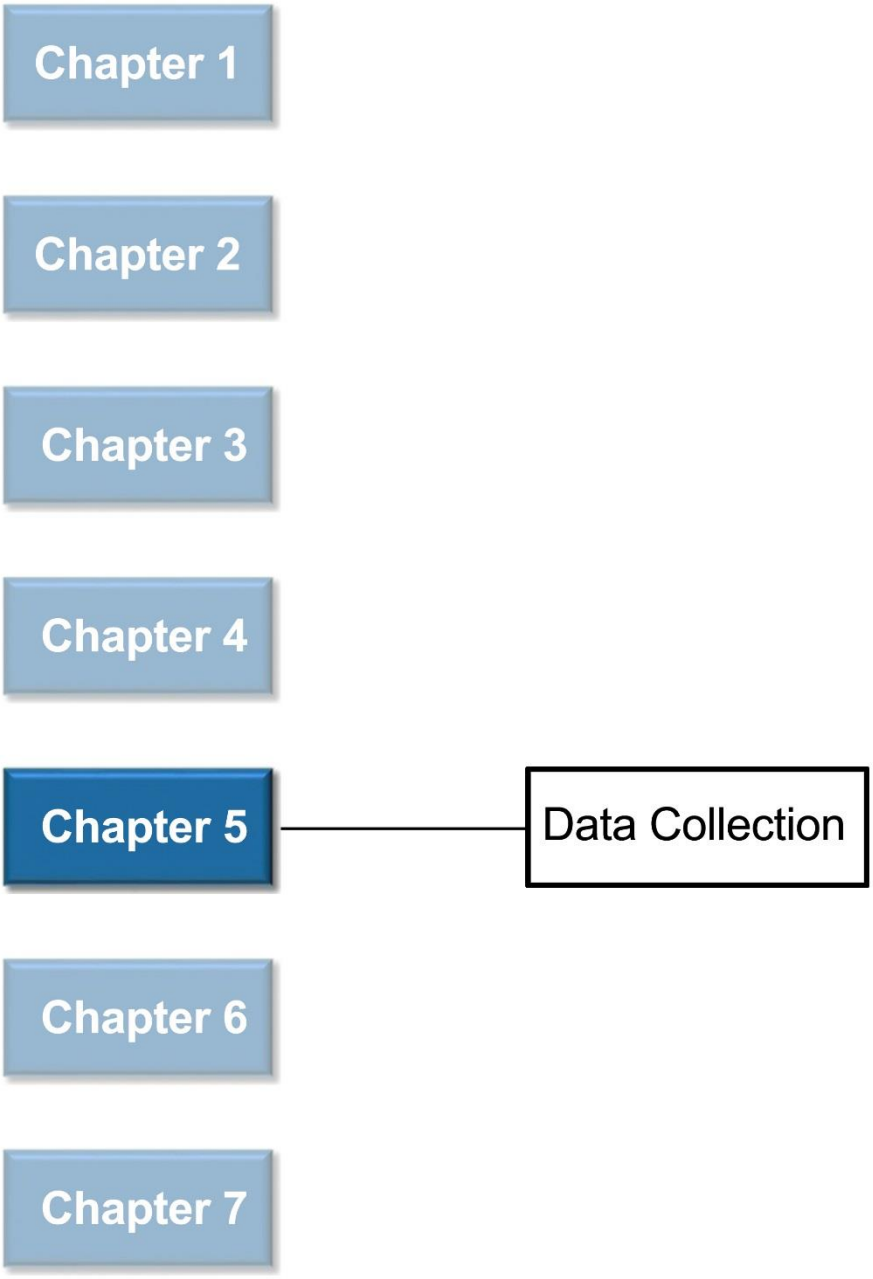


Figure 4-6 – Flow chart of the methodology for the data collection.


Chapter 1
Chapter 2
Chapter 3
Chapter 4
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Data Collection
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Chapter 7

Chapter 5: Data Collection

The data collection was carried out over a period of forty days. It was scheduled and divided into four stages – the first was the collection of documentation, which occurred in the first week; the second and most extensive one was the application of the questionnaires (see Appendix A), which took about three weeks to be completed; the third was the application of interviews with the residents (see Appendix B), which took around a week-and-a-half; and the last was the interviews with the local authorities which took only two days. The observation was done through photographs of original houses as well as those with alterations, boundary walls and verandas, and public and private facilities where they are included as part of the development.

5.1 Documentation

5.1.1 Caixa's Technical Standards

The architectural design of the houses of all the social housing estates built through the My House My Life Programme has to follow the technical standards of Caixa. The developments have to meet the minimum requirements of Caixa in order to have their projects approved to be sponsored by that bank. Caixa updates and changes its requirements when necessary. Three versions of the requirements will be analysed – the first, for the projects approved before 2011; the second, for the projects approved between 2011 and 2013; and the third, for the developments approved since 2013 (Available at: http://www.caixa.gov.br/poder-publico/programas-uniao/habitacao/minha-casa-minha-vida, accessed: 05th of January of 2017).

The bank requires all of the houses to have one living room, one bedroom with space for a double bed, one bedroom with space for two beds, one bathroom, one kitchen, and an external laundry. These requirements have remained the same for the three versions. The design of social housing developments approved earlier than 2011 were required to have a gross internal area of at least 32.00 m^2. The minimum width permitted for the living room was 2.40m, and the living room was required to have sufficient seats for the four occupants of the house The double bedroom was required to have space for a bed measuring 1.40x1.90m, a bed-stand measuring 0.50x0.50m, and a wardrobe measuring at least 1.50x0.50m. The circulation space between the furniture also had to be a minimum of 0.50m The

second bedroom also had to have space for a wardrobe measuring 1.50x0.50m, two single beds measuring 0.80x1.90m each, a circulation space between beds of 0.80m or more, and a circulation space between the other furniture of at least 0.50m. There were no requirements of measures for the bathroom. The kitchen should not have any wall length measuring less than 1.60m, and it should have a sink space 1.20x.55m or more, space for oven measuring at least 0.55x0.60m, and room for a fridge measuring 0.70x0.70m or more. The laundry should include a washing tub measuring not less than 0.60x0.55m, and should have enough space for a washing machine measuring at least 0.60x0.65m. The second version of the technical standards of Caixa, which was required for houses approved between 2011 and 2013, has updated only one requirement in terms of accessibility, demanding that at least 3% of the houses should be adapted for people with special needs. The third and current version requires the houses to have an internal gross area of at least 36.00m². The bathroom must have a width of at least 1.50m, and must have a washbasin, a toilet, and a shower enclosure measuring at least 0.90x0.95m. Moreover, every room needs to have enough space for people with wheelchair to circulate, which has the dimensions 1.20x1.50m (see Table 5-1).

Table 5-1 - Main current requirements of Caixa in relation to the architectural design of social housing.

Room	Requirement
Bedroom 1	Space for one bed (1.40x1.90m); space for one bed-stand (0.50x0.50m); space for one wardrobe (1.50x0.50m); space between furniture (0.50m).
Bedroom 2	Space for two beds (0.80x1.90m); space for one bed-stand (0.50x0.50m); space for one wardrobe (1.50x0.50m); space between furniture (0.50m); space between beds (0.80m).
Kitchen	Minimum width (1.60m); one sink (1.20x0.55m); space for oven (0.55x0.60m); space for fridge (0.70x0.70m); space for cupboard.
Living/ dining room	Minimum width (2.40m); space for: four-seater sofa, three-seater sofa and one chair, or two two-seater sofas; space for a dining table with four settings; space for a TV stand.
Laundry	One washing tub (0.60x0.55m); space for one washing machine (0.60x0.65m).
Bathroom	Minimum width (1.50m); one wash basin; one toilet; one shower enclosure (0.90x0.95m).

5.1.2 City's Regulations

Besides Caixa's technical standards, the design of social housing must also comply with the city's regulations. The regulation for the use of land determines design limits

such as minimum setbacks, and maximum built area (Campo Grande 2005), which are listed below:

Area Reserved for Community Hub

Minimum of 10% of estate's area reserved for community hub.

Local Streets

- Minimum width of street: 7m;
- Minimum width of footpath: 1.5m;
- Minimum roadside width of verge for household bin and planted area: 0.5m;
- Minimum width of pedestrian zone, including footpath, roadside verge, and boundary verge: 2.5m.

Collector Streets

- Minimum width of street: 12m;
- Minimum width of footpath: 1.5m;
- Minimum roadside verge width for household bin and planted area: 0.5m;
- Minimum width of pedestrian zone, including footpath, roadside verge, and boundary verge: 3m.

Parcels and Plots[1]

- Minimum parcel area: 200$m^{2;}$
- Minimum frontage of parcel: 10m;
- Minimum plot area: 75m^2.

Built Area

Maximum built area: 50% of the plot.

Permeable Area

Minimum permeable area: 12.5% of the plot.

Setback

- Minimum distance between houses on the same parcel:1.5m;
- Minimum distance between window and edge of the plot: 1.5m.

[1] Parcel refers to the areas created from the land subdivisions, while plot is the private area for each household, which can be a parcel further subdivided.

5.2 Results of Case Studies

The data collection in regarding specifically to the housing estates investigated, will be shown for each estate individually. The housing estates will be shown chronologically, in the order that they were built (see Table 5-2 and Figure 5-1). The results and the analysis will be presented for each of the four stages.

Table 5-2 - Social housing estates with its number of houses, year of construction, and sample size. The reference number is related to the map below.

Housing estate	No of houses	Year	Sample Size	Ref. Number
Nova Serrana	213	2011	66	01
Vila Fernanda	860	2012	86	02
Joao Alberto Amorim dos Santos	292	2013	72	03
Jose Maksoud	482	2014	80	04
Ary Abussafi de Lima e Gregorio Correa	315	2014	74	05
Celina Jallad	859	2015	86	06
TOTAL	5,034	-	464	-

Figure 5-1 - The location of the six housing estates investigated.

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5.2.1 Case Study 1 – Nova Serrana

Introduction and Plans

Built in 2011, Nova Serrana is the name of the oldest housing development investigated in this research. It has 213 houses, with 852 residents. Based on a 95% confidence level and 10% confidence interval, the Sample Size Calculator has suggested a sample size of 66 houses. It is located in the east of the city, in the Special Social Interest Zone 2.

The development has eight blocks, with a total of 254 plots. Forty-one of these plots are occupied by social houses built around ten years ago, while 213 are occupied by houses built in 2011 through the My House My Life scheme, which is the programme of focus in this research. Therefore, these are the houses that were investigated. All the plots measure 10x20m, which is the minimum permitted by the municipal regulations for social housing developments. There are two blocks reserved for the city council to build community hub, as required by the municipal regulations, one measuring 0.8 hectares, and other 1.0 hectares (see Figure 5-2). The houses have 36.76m² (see Figure 5-3).

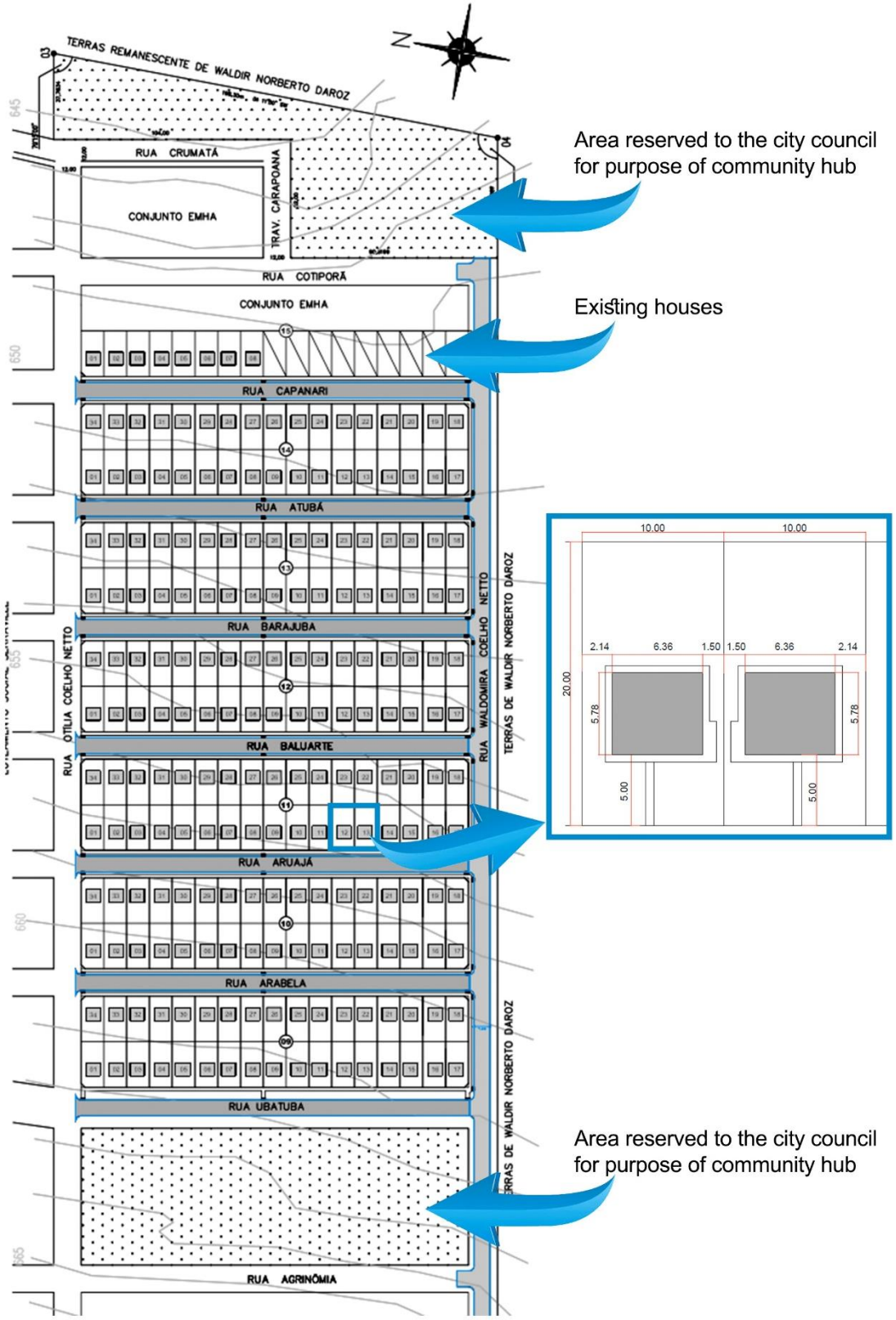


Figure 5-2 - Plan of the housing estate Nova Serrana.

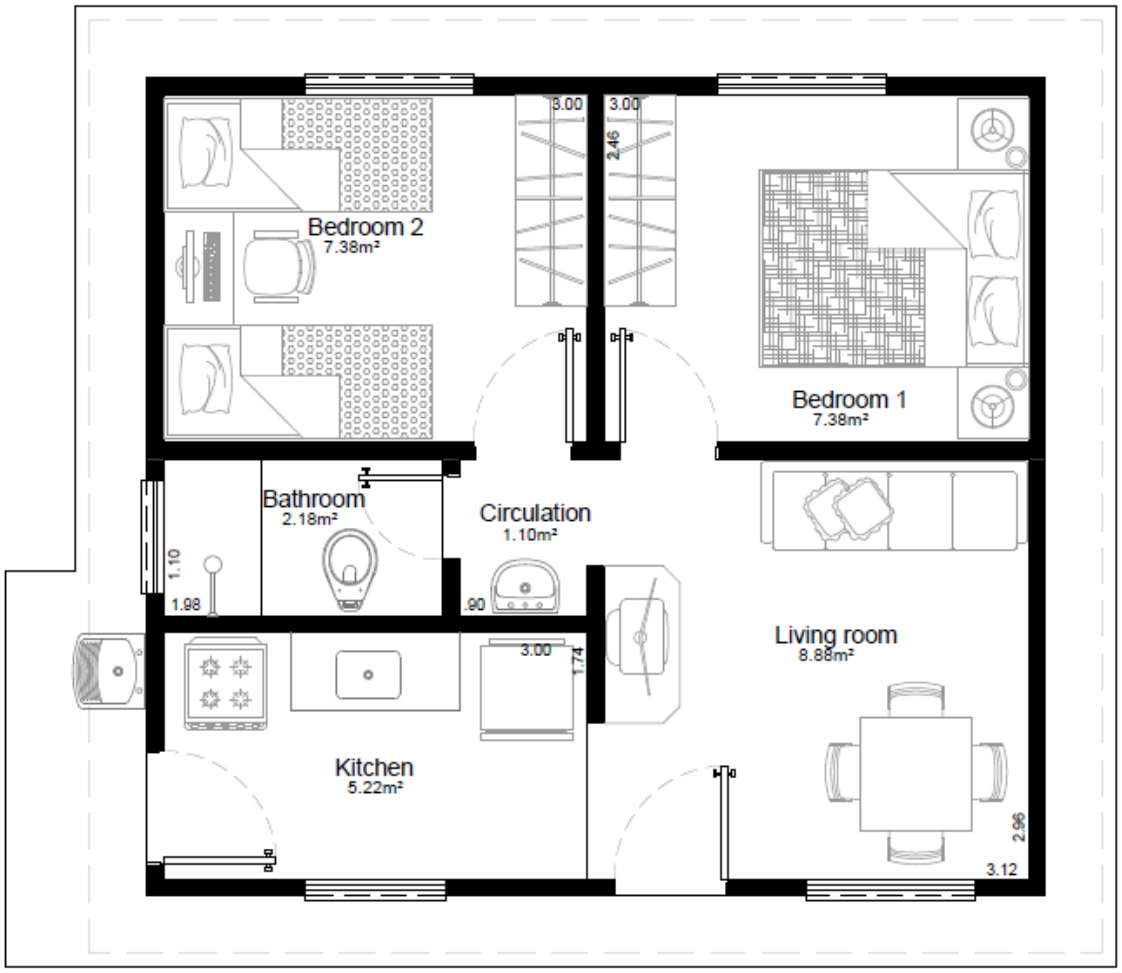


Figure 5-3 - Floor plan of a house of Nova Serrana.

Results of Quantitative Data Collection

Length of Residence

The first set of questions was related to general information about the participants, including length of residence, number of residents, and employment status. The first question was “How long have you and your family lived in this house?” Around a third of residents said that they moved to the development as soon as it was concluded, i.e. 60 months ago. However, another third affirmed that they have moved to the area 12 months after completion. Although the entire development was completed in 2011, some people can take longer to move in due to issues with documentation and other bureaucratic matters, which can cause months of delay to the hand over date. Furthermore, there are residents who could not remember precisely the year when they moved in, in which cases they had to guess roughly. However, the information provides the knowledge that the majority of residents have lived in the area between 48 and 60 months (see Figure 5-4).

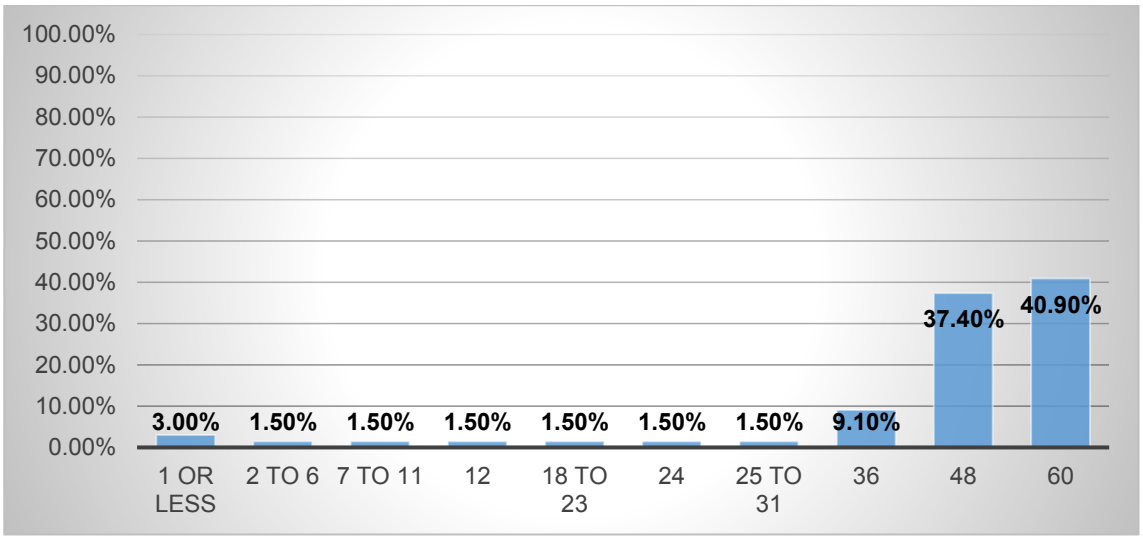


Figure 5-4 - Percentage of residents for each length of residence in months.

Number of Residents

The second question was “How many people live in the house?”, and the third “How many of them are under 18-years old?”. The answers have shown that the average number of residents in each house of the developments is four, two being under 18 years-old, and the other two 18 years-old or over. Approximately one third of the houses have four residents. This matches with what the city council and the sponsor bank Caixa expect for most of the residences, as the architectural design of the houses is planned based around a family of two adults with two children. On another hand, around a quarter of the houses have more than the anticipated occupancy, going from five to up to ten inhabitants per house (see Figure 5-5).

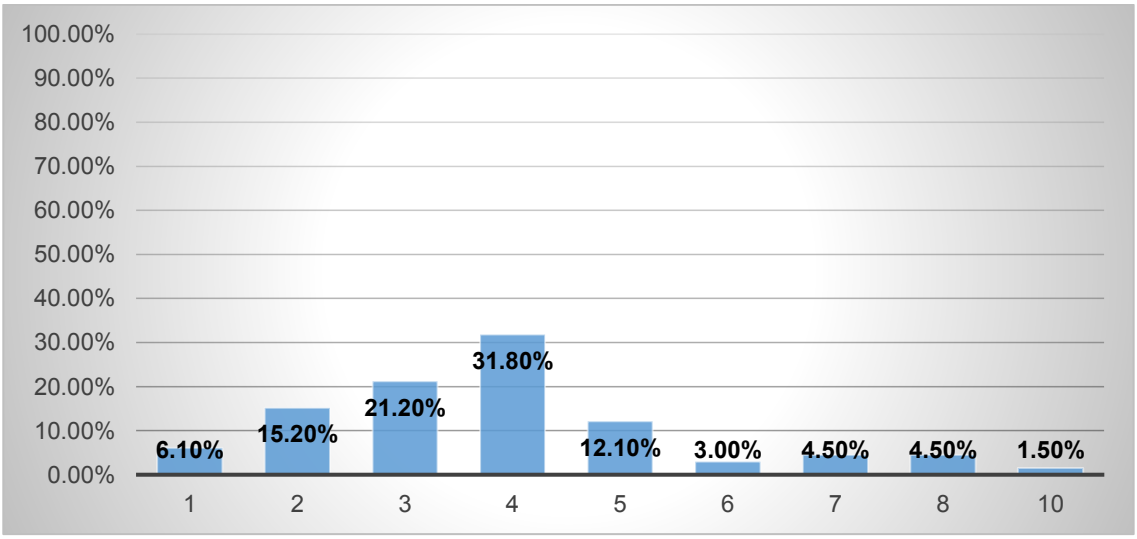


Figure 5-5 - Percentage of number of residents per house.

Around a half of the houses have two adults. Although the average is two children per house, only around a third of the houses are occupied by two children.

Employment Status of Residents

The fourth question was in regards to their employment status. The participants were offered four options, in which they were not limited to only one option:

- Employed/self-employed;
- Home business;
- Not working or studying;
- Students.

Fifty-five houses, which represents 83.3% of the sample, have at least one person in employment. Although there are houses with up to six adults, there was not any house with more than four people working; and around 40% of the residences approached have only one person working. Eight of these houses have at least one person who runs a home business, which is not a significant number. Thirty-six houses, which accounts for 56.1% of the sample, have at least one person who does not work nor study. Forty houses, which represents 60.6% of the sample, have at least one student. It includes both adults and children. Around a third of these houses has only one student.

Alterations and Extensions

The second group of questions was about alterations and extensions. The first question of this set was “Have you built anything extra in the house? If so, please specify.” It was then found that 47 houses, i.e. 71.2% of the sample, have built boundary walls. The number of houses with side verandas is also the substantial number of twenty, which represents around 30% of the total. There is also an expressive number of people who added front verandas, extra bedrooms, bathrooms, and kitchen. Almost one in four houses has now a front veranda; and more than one quarter of the residences has at least one extra bedroom; 15% of the houses added extra bathrooms, and around 14% of the houses have built a new kitchen (see Table 5-3 and Table 5-4).

Table 5-3 - Summary of Site Additions.

Site Additions	N. of houses	Percentage
Boundary walls	**21**	**32**
Boundary walls and side veranda	**11**	**17**
Boundary walls and front veranda	**8**	**12**
Boundary walls, side and front verandas	4	6
Boundary walls, rear and side verandas	2	3
Side verandas	2	3
Front verandas	2	3
Boundary walls, side, front and rear verandas	1	2

	Boundary walls	Side veranda	Front veranda	Rear veranda
No. of houses	47	20	15	2
Percentage	71	30	23	3

Table 5-4 - Summary of Additional Rooms.

Additional rooms	Number of houses	Percentage
One bedroom and one bathroom	5	8
Home business	5	8
One bedroom	4	6
One storage	4	6
Two bedrooms, one bathroom and one kitchen	3	5
One bedroom, one living room and one kitchen	2	3
One bedroom, one bathroom and one kitchen	1	2
One bedroom, one kitchen and one storage	1	2
Two bedrooms and one bathroom	1	2
Two bedrooms and one kitchen	1	2
One kitchen	1	2

	Bed 1	Bed 2	Living	Bath	Kitchen	Storage	Home business
Houses	17	5	2	10	9	4	5
Percentage	26	8	3	15	14	6	8

The participants were also asked if they have made any alteration to the existing rooms of the house. The kitchen was the most commonly altered by the residents, as seven houses, which accounts for around 10% of the total, have altered kitchens. On another hand, the other rooms have not presented a significant number of alterations.

Commuting to Work

The third set of questions was about commuting to work. The first question was “Do any of the residents work in the neighbourhood?” Amongst the 66 participants who have jobs, it was found that only five (8%) work in the neighbourhood. The following question was “How long does it take each resident to travel to work?” Based on the answers of the remaining 63, the responses ranged between five minutes and two hours, with the highest number of journeys lasting sixteen to thirty minutes (see Figure 5-6).

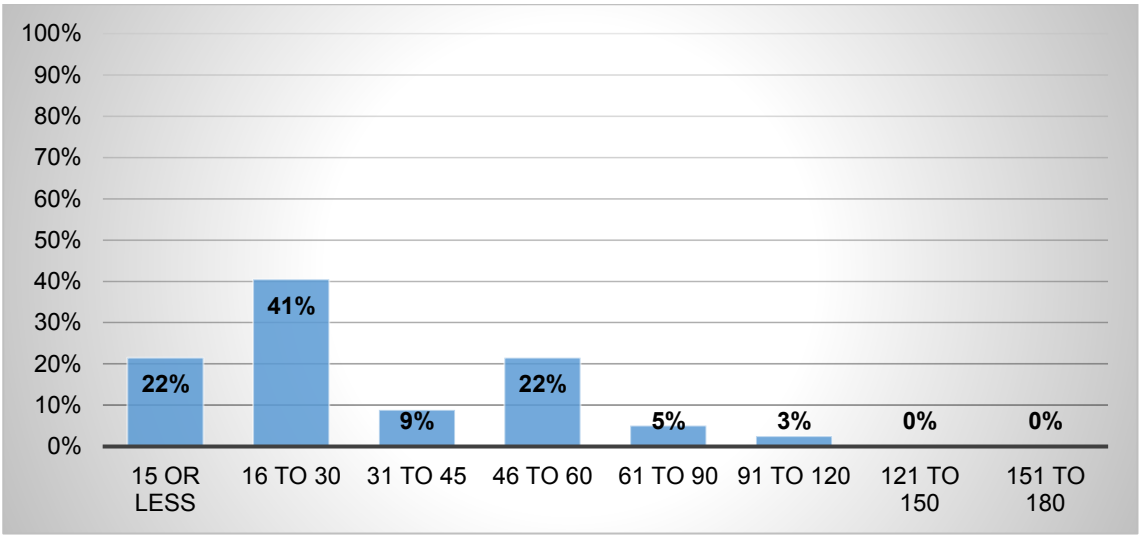


Figure 5-6- Percentage of residents for each length of time to commute to work in minutes.

The third question in this set was “What type of transport does each resident use to go to work?” The options were walking or cycling, public transport, own vehicle, and other, in which they had to specify. None of the participants has selected the option ‘other’. Amongst those who have jobs, around 46% of people commute to work by their own vehicle, and 40% by public transport, while only 14% go to work on foot or by bike (see Figure 5-7).

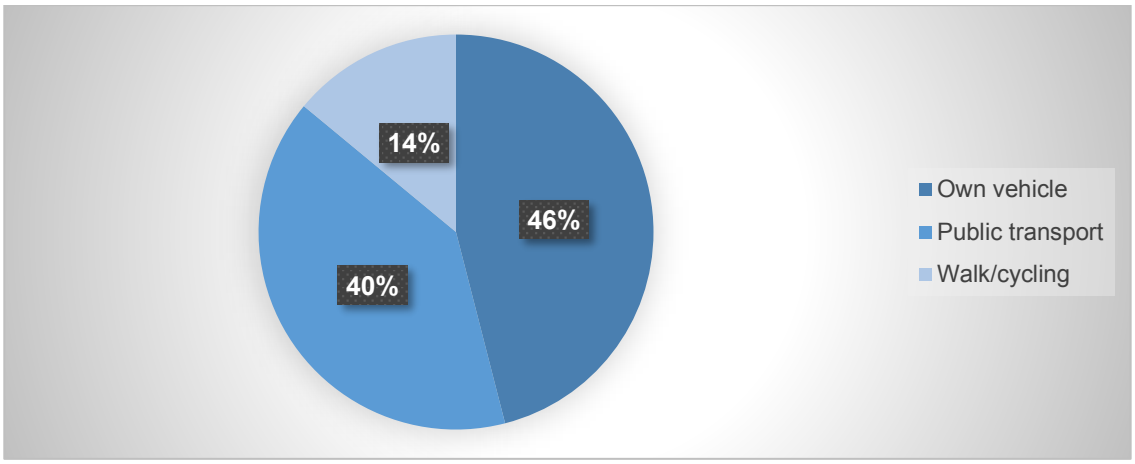


Figure 5-7 - Percentage of use of each form of transport to commute to the place where the residents work.

Commuting to Study

The fourth question in this set was "Do any of the residents' study in the neighbourhood?" Amongst the 84 students, including those who go to school, college or university, only seven study in the neighbourhood. The next question was "How long does it take each resident to go to school, college or university?" The range was between ten minutes and two hours, with the highest number of journeys lasting sixteen to thirty minutes (see Figure 5-8).

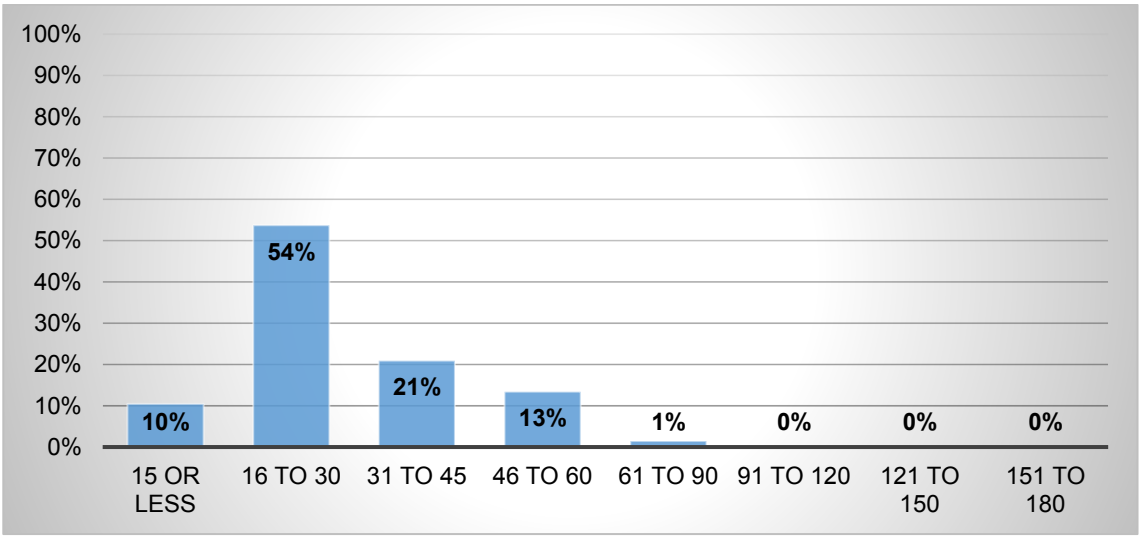


Figure 5-8 - Percentage of residents for each length of time to commute to the place where they study in minutes.

The last question in this set was "What type of transport do each resident use to go to school, college or university?" The majority of students, representing 63%, use public transport, while 26% use their own vehicle, and 11% either walk or cycle (see Figure 5-9).

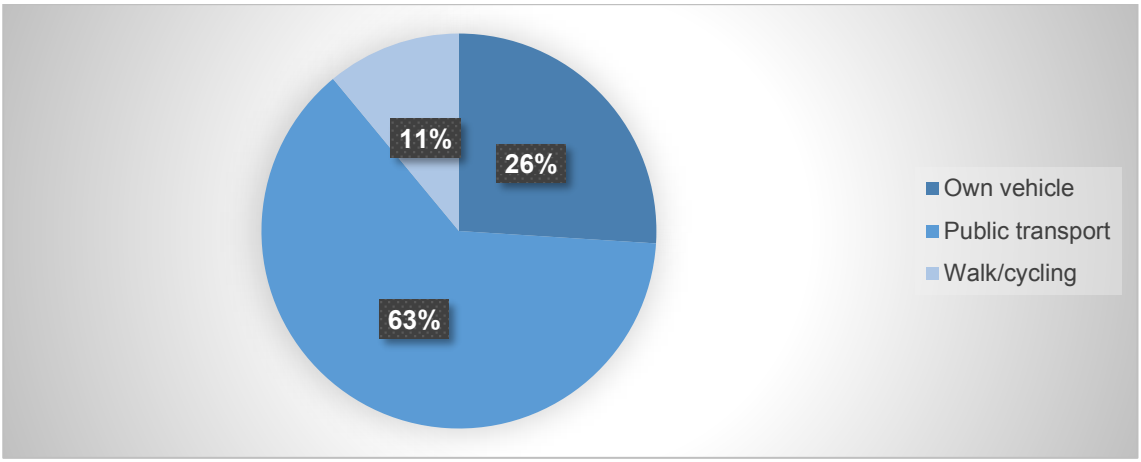


Figure 5-9 - Percentage of use of each form of transport to commute to the place where the residents study.

Community Facilities

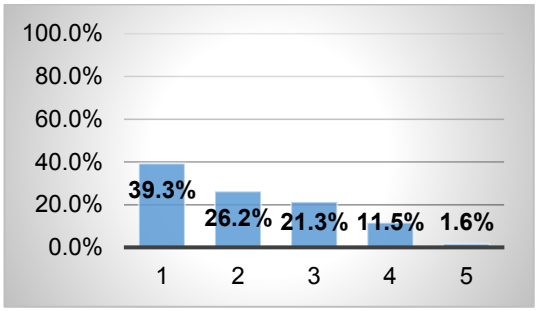
The last set of questions was aimed at assessing the perceptions of the residents in relation to the facilities of their neighbourhood. The participants were asked to rate six items of their neighbourhood – shopping facilities, leisure places, health centres, nurseries, schools, commuting to work and study, and community events. They were asked to give a score from 1 to 5 for each item, being 1 very poor, 2 poor, 3 average, 4 good and 5 very good. On average, commuting is the only item that scored 3, while all the others were scored either as poor or very poor (see Table 5-5).

Table 5-5 - Scores given by the residents to community facilities.

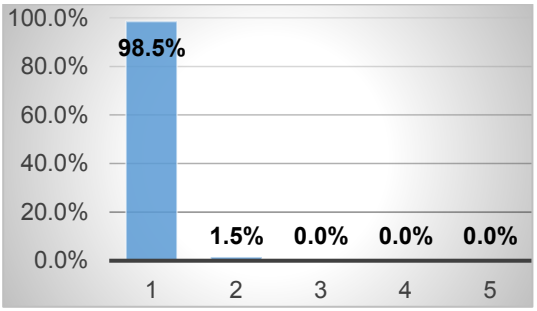
	Shop.	Leisur.	Healt.	Nurs.	Scho.	Commutin.	Commun.
Mean	2	1	1	1	2	3	1
Mode	2	1	1	1	1	3	1

The shopping facilities in the neighbourhood were considered as poor or very poor by 65.5% of the residents. When asked about leisure places in the neighbourhood, the vast majority, represented by 98.5%, consider this item as very poor. Only one participant rated public leisure places in the neighbourhood as poor, and none has considered this item as average, good, or very good. A similar, but less pronounced picture, is found in the result to the question about health centres. The provision of nurseries did not score any better with almost 79.3% of people considering it to be very poor. On another hand, the results for schools were non-uniformly spread through the five scores of the category. Nevertheless, more than a half of the participants view the schools in the neighbourhood as very poor. Commuting was even more evenly spread across the scores, as more than a third see commuting

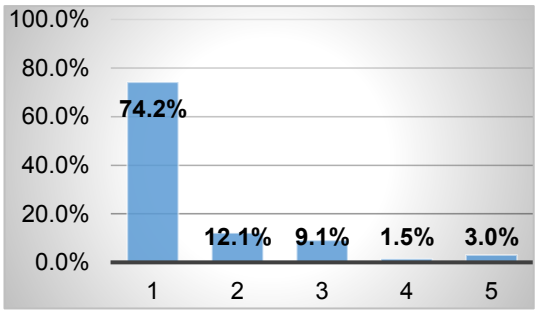
facilities in the neighbourhood as good, but around one quarter consider it as very poor. The category community events was more homogeneous, as almost 90% of the participants alleged to consider this item as very poor (see Figure 5-10**Error! Reference source not found.**).



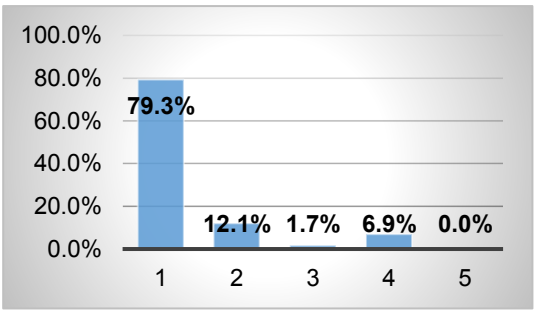
Shopping Facilities



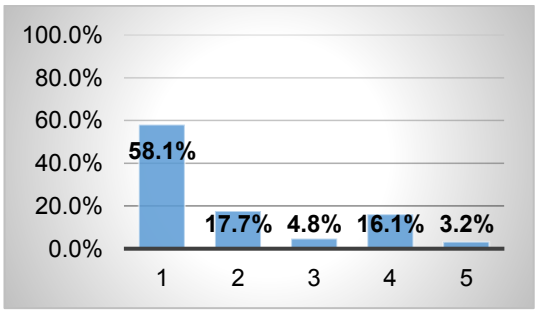
Public Leisure Places



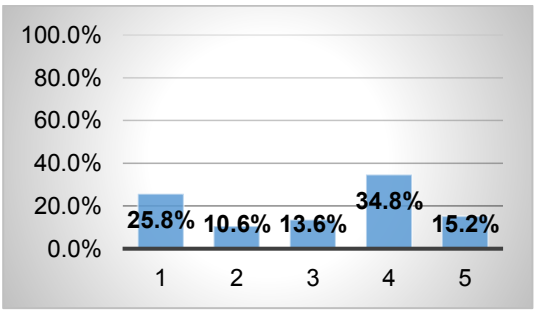
Health Centres



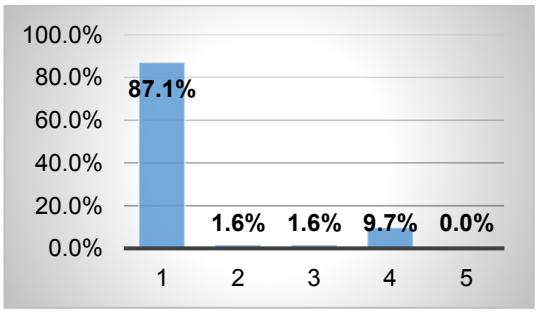
Nurseries



Schools



Commuting



Community Events

Figure 5-10 - Percentage of responses for each score for community facilities.

Results of Qualitative Data Collection

The quantitative data of each development was collected through semi-structured interviews with the residents. The interviews have two set of questions – the first is

based on the theoretical framework, while the second is based on the results of the quantitative data. The first three questions are related to the home, which aimed at identifying the perceptions of the participants in relation to their houses. The fourth, fifth, and sixth questions are about the community, in which the participants are asked to provide information about their views in relation to the neighbourhood where they live. There are three different groups of questions for the second set of the interviews, which varies based on the responses of the participants in the questionnaires. Six residents of each housing estate were selected to participate to the interviews. Two of them were selected based on the fact that they have made alterations or extensions in the houses; two were chosen because they have not made any alteration or extension in their houses; and two were selected due to the fact that they have rated community facilities as poor or very poor. Therefore, the first six questions will be the same for all the six participants, but the second set will vary.

Questions about the Home

The first question in this section was “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why.” Three interviewees said they were satisfied with the house, as it suits their basic needs, while the other three are not. The reason for the dissatisfaction of two of them is due to the small number of bedrooms, while the third dissatisfied person complained about the small size of rooms. Two of them have also mentioned the small size of the kitchen as being a major problem. The second question was “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alteration, in relation to security? Please explain why.” Three responded that they feel insecure, and one said that he/she feels partially insecure, while two affirmed that they feel secure in the house. The reason for the insecurity of all of the four participants, including the one who said that she/he feels partially insecure, was mainly related to the lack of boundary walls, and weaknesses with the windows and doors. The third question was “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to aesthetic? Please explain why.” All of them said that they appreciate the appearance of the house, and that they are satisfied with that characteristic.

Questions about Community

The fourth question of the interview is the first question of the set about community. The question was “How would you describe your level of satisfaction in relation to this neighbourhood? Please explain why.” Only one interviewee said that they feel satisfied with the neighbourhood. They emphasised that when they had just moved in, four years ago, the neighbourhood was very basic and was composed only of houses. Now, however, according to this participant, the neighbourhood has improved, and has a range of options of local shops. They also believe that the area will keep improving over the years. On another hand, the other five interviewees said that they dislike the fact that the neighbourhood is composed only of houses, and does not have any community facilities, such as health centres, schools, nurseries, parks, and shopping facilities. Three of them have also complained about the peripheral location of the development, and about the poor public transport in the area. “Do you believe there is any place or places in the neighbourhood that you could identify as a symbol or symbols of the community, such as a church, a park or a monument? If so, could you point them out and explain why?” The answers were unanimous – there is not any symbol of the community in the neighbourhood. The last question of this section was “Do you feel like being part of a community in this neighbourhood?” Three of them said yes, but the other three stated that they do not feel like being part of a community as they do not have social interaction with the neighbours.

Questions for Those Who Made Alterations in the House

The first question in this section was “What were the main reasons that led you to make alterations in the house?” One of them has altered the kitchen and living room, so they would be bigger, and has built an extra bedroom in the house, as they were not satisfied with the size of the bedroom. The other participant has built an extra bedroom to help to accommodate the residents in the house, as there are eight people living in the house. They also constructed a veranda for leisure. The second question was “How would you describe your level of satisfaction in relation to the house today, i.e. after the alterations? Please explain why.” Both of them said that they are considerably more satisfied with the house now, as it is now more suitable to meet their needs. The first one, however, said that he still intends to build a veranda on the house for leisure. The last question was “Could you affirm that you feel like this place is your home?” Both of them said yes for this question, and one

added that the fact of the house is comfortable helps them to feel this place as their home.

Questions for Those Who Did Not Make Alterations in the House

The first question of this set was “Why have you never made any alteration to the house?” Both of them have said that the only reason was that they cannot afford to make alterations to the house. The next question was “Do you plan to make alterations in the future? Please explain why.” Both of them said that they would like to build boundary walls for security and privacy, rear veranda for leisure, and side veranda for laundry. One also said that they would like to construct an extra bedroom, and the other said that they would like to extend the kitchen. The third and last question was “Could you affirm that you feel like this place is your home?” Both of them said yes. One said that they did not have this feeling at the beginning, but developed a sentiment of attachment to the house over the years. The other said that the fact that they pay for their own house encourages them to have a feeling of home towards to the place.

Questions for Those Who Rated the Community Facilities as Low or Very Low

The initial question of this set was “Why have you rated shopping facilities of this neighbourhood as very low?” Both participants have stated that the reason is due to the lack of shopping facilities nearby. They said that the local shops are too small to meet their needs, and there is not any big supermarket close to the area. The second question was “Why have you rated public leisure places of this neighbourhood as very poor?’ They both said that it was due to the fact that there are no leisure places in the neighbourhood. The next question was “Why have you rated health centres of this neighbourhood as very poor?” Both said that the reason for the discontentment was due to the fact that there is not any health centre nearby, and the nearest one is in another neighbourhood. One of them said that, besides being far, the health centre is not capable to meet the demand. The following question was “Why have you have rated nurseries of this neighbourhood as very poor?” and their responses were also that there is not any nursery nearby. One also added that there is a nursery that is not too far from the estate, but there is not enough capacity for the demand. The other question was “Why have you rated schools of this neighbourhood as very poor?” and the answer repeated – there are no schools in the neighbourhood. The next question was “Why have you rated commuting in this neighbourhood as very poor?” And they said it was due to the

lack of public transport in the area. There is only one bus line, and the bus stops in the neighbourhood only every hour. The last question was “Why have you rated community events of this neighbourhood as very poor?”, and their responses was that there are not any social events in the neighbourhood. One said that the lack of social events in the neighbourhood makes them feel like they are living in an isolated area, as there is not any communal events in the community.

Results of Observation

House in the Original Format

The picture below was taken by Google Street View, and it illustrates the development in the way it has been delivered to the residents (see Figure 5-11), i.e. without any alteration.

Figure 5-11 - Houses of Nova Serrana without alterations of the residents.
Source: Google Street View.

Houses with Site Additions

Boundary walls were notably the main addition to the houses done by the residents (see Figure 5-12).

Figure 5-12 - Houses with boundary walls.

A significant number of verandas could also be observed. It is possible to note that they are mainly used as a garage (see Figure 5-13).

Figure 5-13 - House with front veranda.

Houses with Alterations and Extra Rooms

During the questionnaires, the participants who built extra bedrooms said that these rooms have been built in the backyard of the houses. Nevertheless, none of them have given permission for these rooms to be photographed. However, the residents said that they usually build the bedrooms to the boundary walls of the backyards (see Figure 5-14).

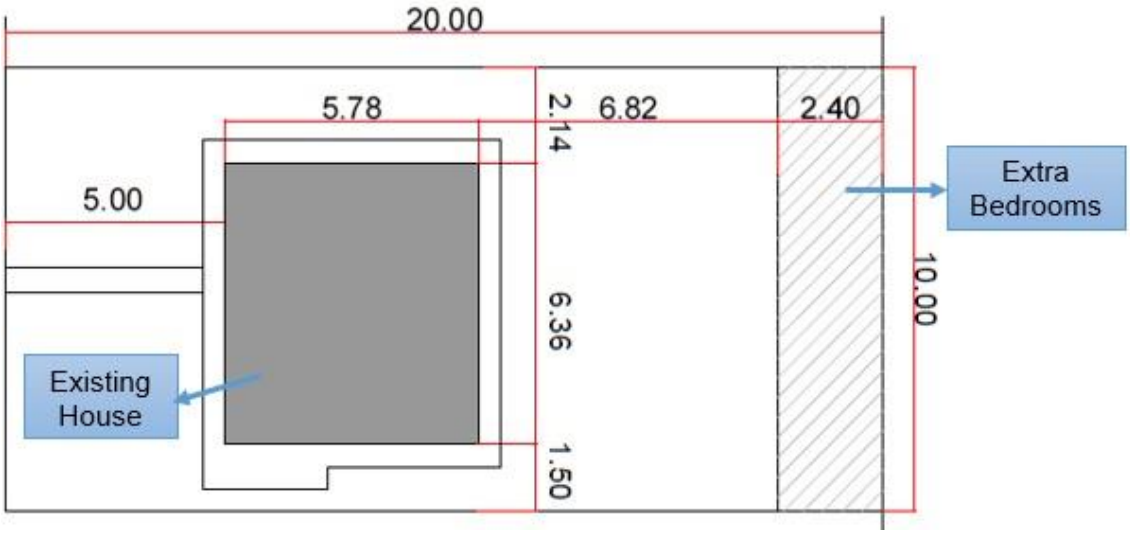


Figure 5-14 - House plot with bedrooms built to the boundary walls of the backyard.

The shops in the housing estate were arranged through adaptations in the houses of residents, mainly in the main street of the neighbourhood (see Figure 5-15). In the same street, it is also possible to find a church, which was still under construction

by the time these photographs were taken, and which was being built in the backyard of a house, donated by one of the residents (see Figure 5-16).

Figure 5-15 - Shops built in the houses.

Figure 5-16 - Church on the main street, white building on the right.

Public Areas

After 5 years, the areas reserved for the city council for purpose of community hub are still undeveloped (see Figure 5-17).

Figure 5-17 - Area reserved for the city council for purpose of community hub.

5.2.2 Housing Estate 2 – Vila Fernanda

Introduction and Plans

Vila Fernanda was built in 2011. It has 860 houses, with 3,440 residents. Based on a 95% confidence level and 10% confidence interval, the Sample Size Calculator has suggested a sample size of 86 houses. It is located in the southwest of the city, in the Restrict Densification Zone. Through the website of the city council, it was possible to identify that most of the nearest public services are located in another district around 500m north from Vila Fernanda, except for a nursery, located just to the south of the development.

The development has 38 blocks, with a total of 997 plots. Three of these blocks are reserved for the city council to build community hub. One has an area of 0.90 hectares, other 2.3 hectares, and the other 2.0 hectares. Eight-hundred and sixty plots are for housing, with the standard plots measuring 10x20m, while the others are reserved for private development (see Figure 5-18). The houses have 36.14m^2 of built area (see Figure 5-19).

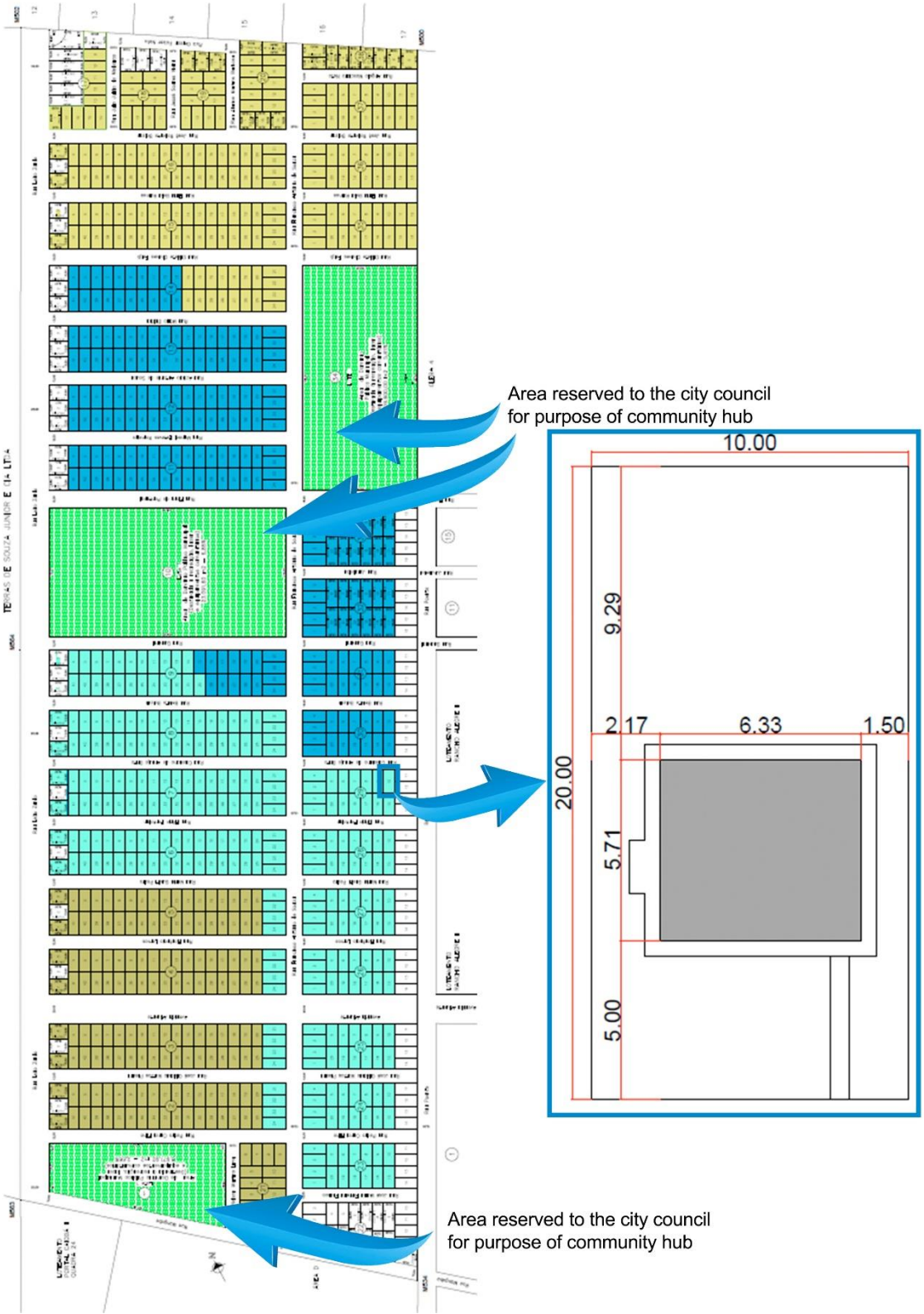


Figure 5-18 - Plan of the housing estate Vila Fernanda.

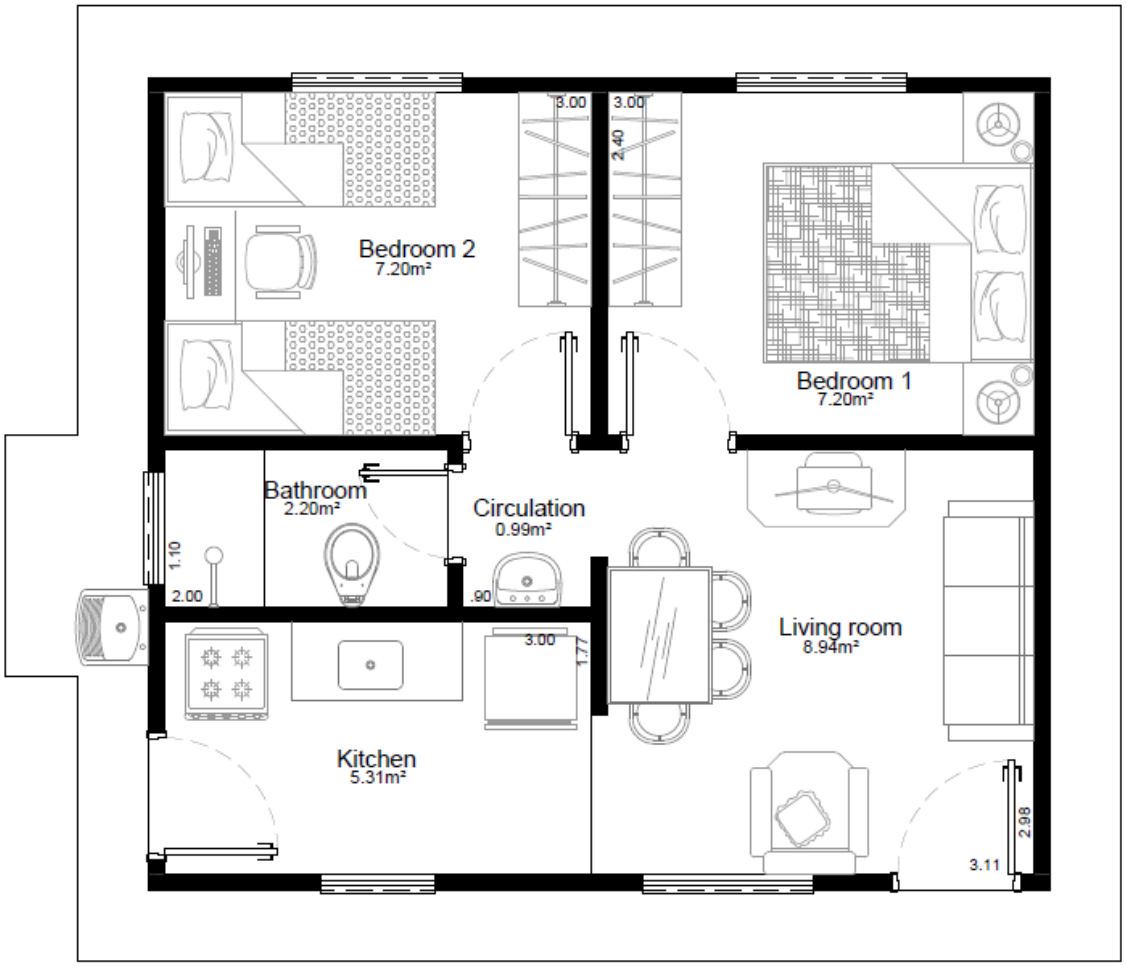


Figure 5-19 - Floor plan of a house of Vila Fernanda.

Results of Quantitative Data Collection

Length of Residence

Vila Fernanda was built in four different stages, being delivered between 2011 and 2013. Therefore, the length of residence for the people varies, besides the fact that issues related to documentation of the residents can also delay the delivery of their houses. Approximately 66% of the residents have been living in the housing estate for the past 48 months (see Figure 5-20).

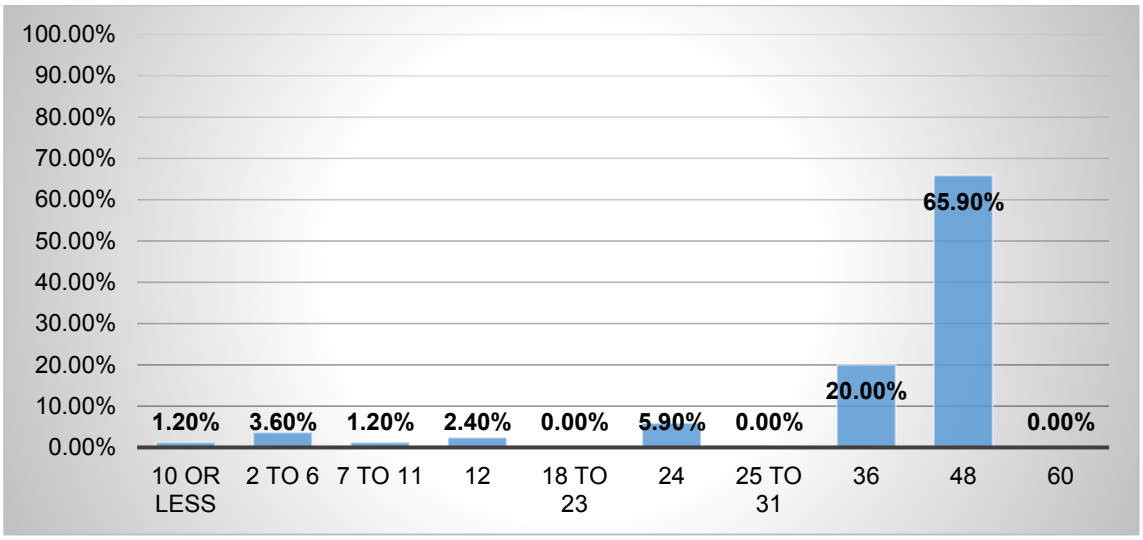


Figure 5-20 - Percentage of residents for each length of residence in months.

Number of Residents

The number of residents has a similar figure to the previous development presented, as the majority of houses have four residents or less. Nevertheless, the number of residents with more than four inhabitants is significant, as around a third of the houses have five or more residents (see Figure 5-21).

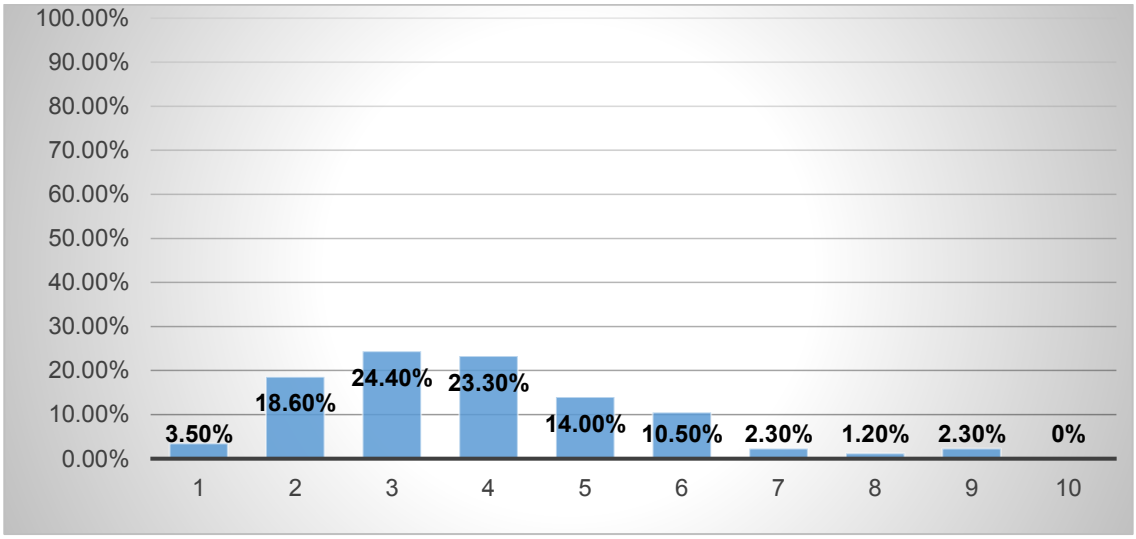


Figure 5-21 - Percentage of number of residents per house.

Around a half of the houses have two adults. Although the average is two children per house, only around a quarter of the houses are actually occupied by two children.

Employment Status of Residents

The fourth question was in regards to their employment status. The participants were offered four options, in which they were not limited to only one option:

- Employed/self-employed;
- Home business;

- Not working or studying;
- Students.

Sixty-eight houses, which represents 79.1% of the sample, have at least one person in employment. Although there are houses with up to six adults, there was not any house with more than four people working; and around 43% of the residences approached have only one person working. Five of these houses have at least one person who runs a home business, which is not a significant number. Fifty-eight houses, which accounts for 67.4% of the sample, have at least one person who does not work nor study. Fifty-six houses, which represents 65.1% of the sample, have at least one student. It includes both adults and children.

Alterations and Extensions

With the set of questions about alterations and extensions, it was found that more than a half of the houses built boundary walls. Side and front verandas also had a significant number, as 37% of the houses constructed the former, and 20% of the residents built the latter (see Table 5-6). On another hand, houses with extra rooms had no expressive numbers, excepting from the bedrooms, as 12% of the houses built at least one bedroom (see Table 5-7). In terms of alterations, the figure is even less relevant.

Table 5-6 - Summary of Site Additions.

Site Additions	Number of houses	Percentage
Boundary walls and side veranda	**24**	**28**
Boundary walls	**18**	**21**
Side veranda	**15**	**17**
Front veranda	**13**	**15**
Boundary walls and front veranda	5	6
Front veranda side veranda	2	2
Boundary walls, front and rear verandas	1	1
Boundary walls, front, rear and side verandas	1	1
Swimming pool	1	1

	Boundary walls	**Side veranda**	**Front veranda**	**Rear veranda**
Number of houses	49	32	17	2
Percentage	57	37	20	2

Table 5-7 - Summary of Additional Rooms.

Additional rooms	Number of houses	Percentage
Bedroom	5	6
Home business	5	6
Bedroom and bathroom	2	2
Bedroom, bathroom and kitchen	2	2
Two bedrooms	2	2
Bedroom and kitchen	1	1
Bedroom, living room, bathroom and kitchen	1	1
Two bedrooms, living room, bathroom and kitchen	1	1
Kitchen	1	1
Storage	1	1

	Bed 1	Bed 2	Living	Bath	Kitchen	Storage	Home business
Houses	10	3	2	6	7	1	5
Percentage	12	3	2	7	8	1	6

Commuting to Work

When people were asked whether they work in the neighbourhood or not, only seven affirmed that there is at least one resident in their house who works in the neighbourhood, which represents only 8%. The length of time that they spend to community vary from 5 minutes to two hours. One quarter takes between sixteen to thirty minutes to commute to work, while one fifth takes forty-six minutes to an hour. Fifteen or less, thirty-one to forty-five, and sixty-one to ninety minutes were also other groups which were also representing more than 10% of the participants (see Figure 5-22).

The pie chart for percentage of people who use each mean of transport is similar to the previous housing estate presented. The highest number is concentrated by people who go to work with their own car, represented by almost a half of the population. It is followed by people who use public transport, which accounts for 42% of the total. Only 10% of the participants affirmed that they go either walking or cycling to work (see Figure 5-23).

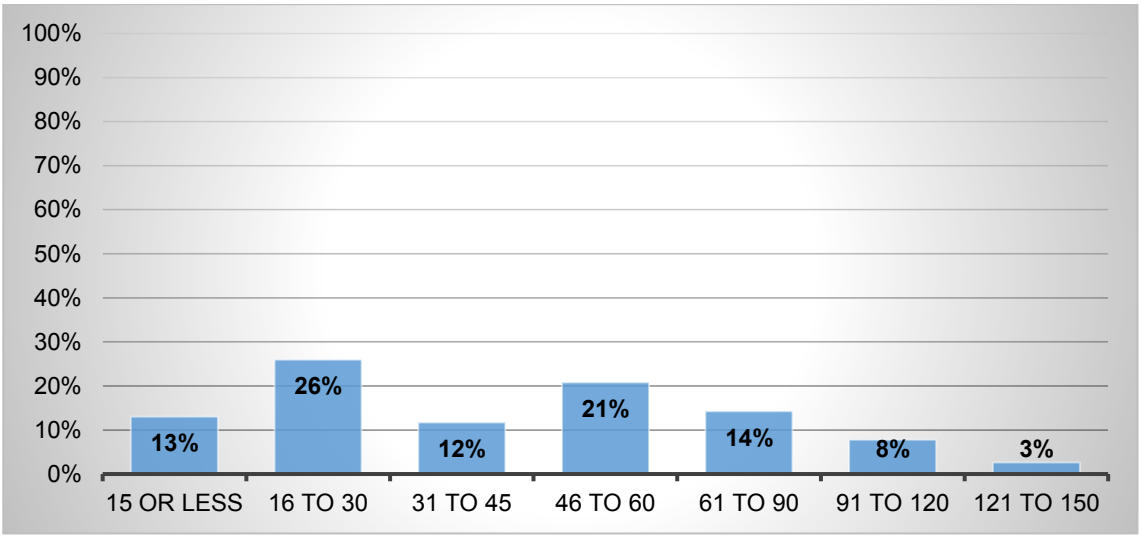


Figure 5-22 - Percentage of residents for each length of time to commute to work in minutes.

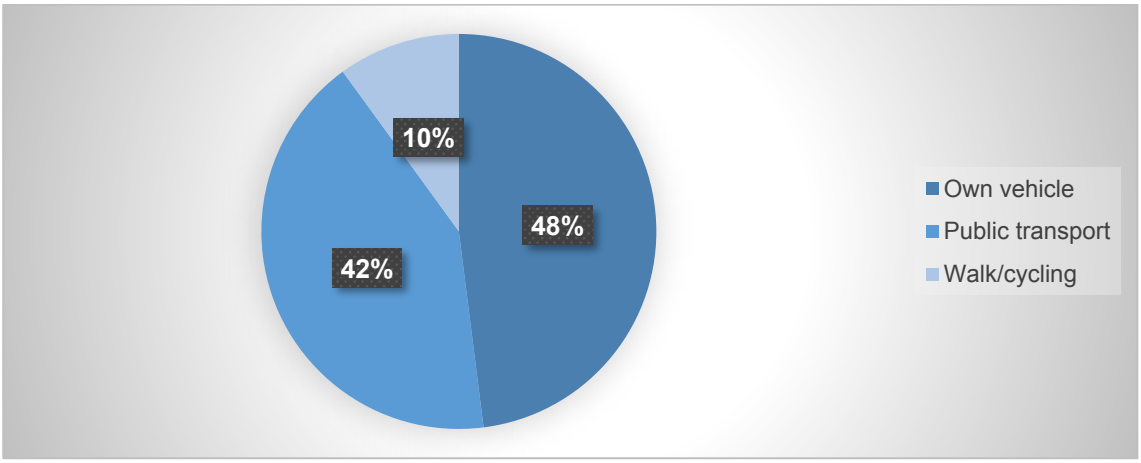


Figure 5-23 - Percentage of use of each form of transport to commute to the place where the residents work.

Commuting to Study

Only eight houses, which represents 9% of the sample, have at least one person who studies in the neighbourhood. The length of time for commuting for who study ranges from five minutes to an hour and a half. Almost a half of them take between twenty and thirty minutes to commute. 20% of the students, which is the second highest number, takes between thirty-five to forty-five minutes to commute. 18% of the students take from fifty minutes to an hour and a half to commute (see Figure 5-24).

The means of transport to study also resembles the numbers of the previous housing development. The majority of students use public transport, while almost one third commutes using their own vehicle. Only 8% commute by bike or on foot (see Figure 5-25).

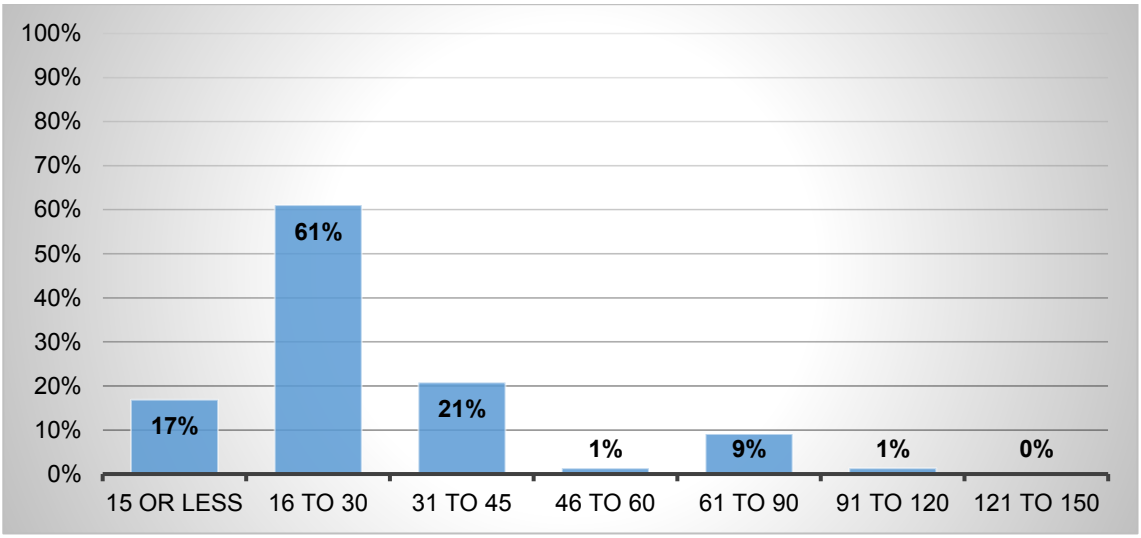


Figure 5-24 - Percentage of residents for each length of time to commute to the place where they study in minutes.

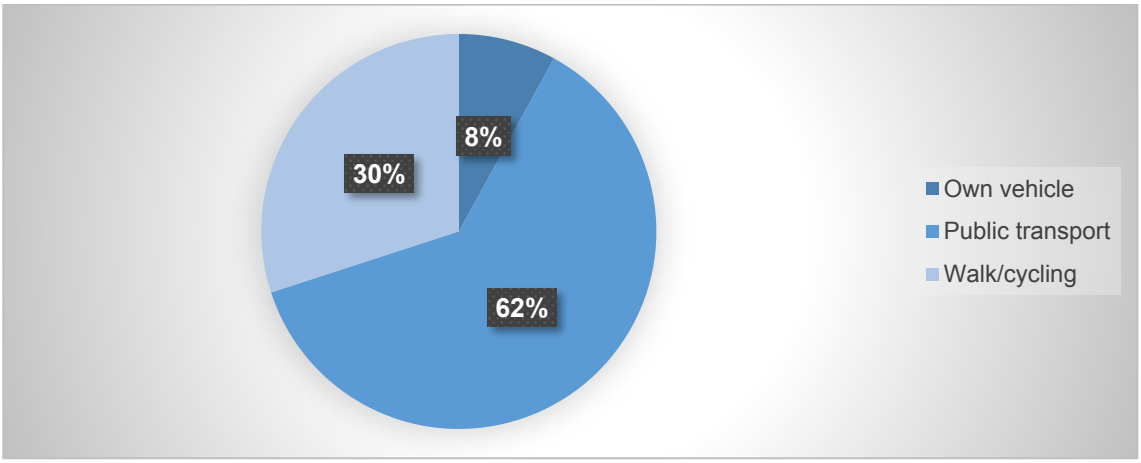


Figure 5-25 - Percentage of use of each form of transport to commute to the place where the residents study.

Community Facilities

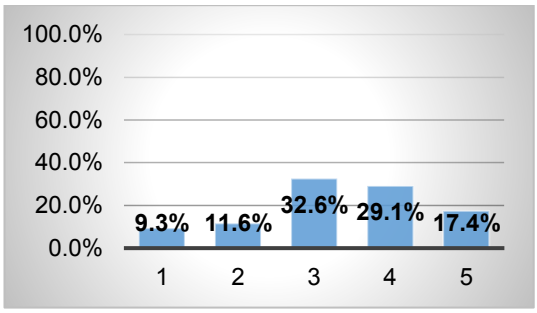
The community facilities of Vila Fernanda were considerably better scored than the previous development. Leisure places within the neighbourhood was the only item considered as very poor by the residents. School and community events also presented low levels of resident satisfaction (see Table 5-8).

Table 5-8 - Scores given by the residents to community facilities.

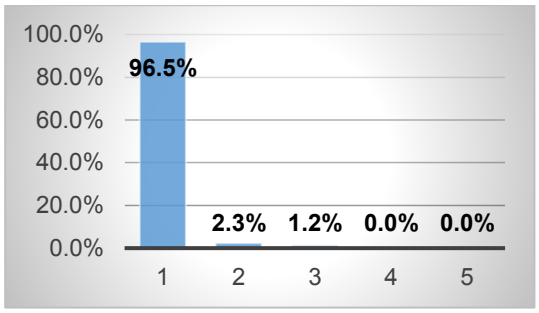
	Shop.	Leisure	Health	Nursery	School	Commuting	Community
Mean	3	1	3	3	2	3	2
Mode	3	1	4	3	1	3	1

Around a third of people consider the shopping facilities in the neighbourhood as average, while 46.5% think it is good or very good. However, around one in every five people consider shopping facilities in the neighbourhood as poor or very poor. Leisure places in the community had the worst scores amongst the items

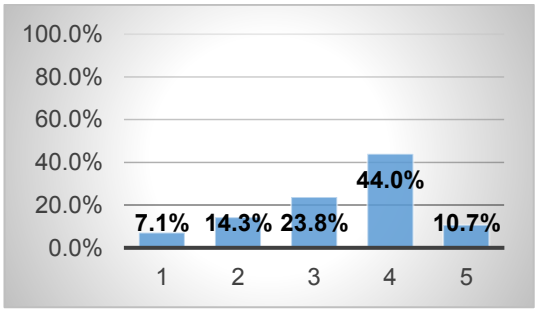
approached. There were no positive responses for this item. The vast majority, represented by 96.5% of the sample, considers leisure places in the neighbourhood as very poor. Health centres in the neighbourhood had the best scores amongst the participants. More than a half of people see this item as good or very good. The item nurseries had the greatest variations and gaps between the scores, as 38.2% of people considering this item to be good, contrasting with 27.3% of people seeing nurseries in the neighbourhood as very poor. School is views by the majority of people (62.5%) as very poor. Similarly to nurseries, commuting had also great variations of responses, as 37.2% of people see this item as good, and 17.4% consider commuting in the neighbourhood to be very poor. The majority of people (56.9%) views community events in the neighbourhood as very poor, followed by 19.4%, who considers this item to be poor (see Figure 5-26**Error! Reference source not found.**).



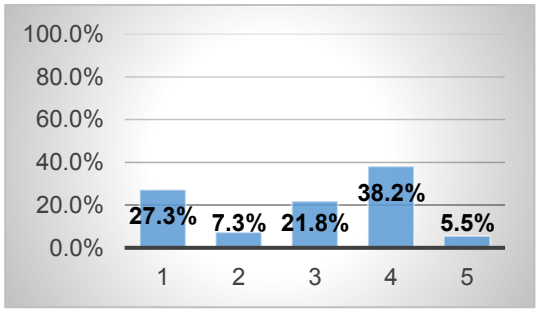
Shopping Facilities



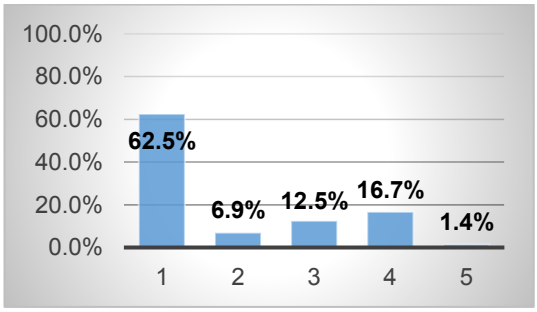
Public Leisure Places



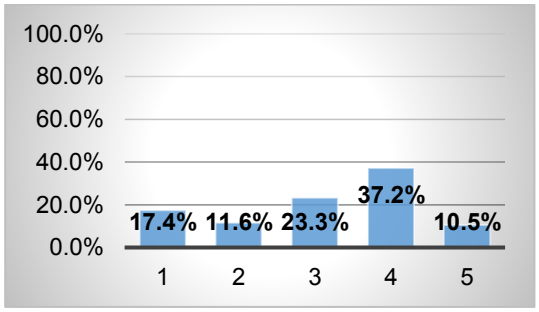
Health Centres



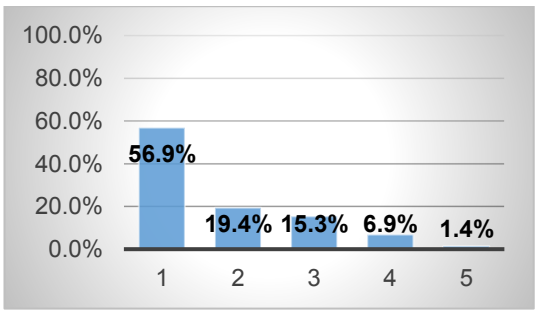
Nurseries



Schools



Commuting



Community Events

Figure 5-26 - Percentage of responses for each score for community facilities.

Results of Qualitative Data Collection

Questions about the Home

When answering the question “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why”, four interviewees said that they were satisfied with the house, as it suits their basic needs. One said that they are partially satisfied, as the bedrooms and the kitchen

are small. Another said that they are not satisfied for the same reason, but also because the number of bedrooms is insufficient for their family's needs. When asked the question "How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alteration, in relation to security? Please explain why", only one resident said that they feel secure in the house, while the other five pointed to the fact that the neighbourhood is dangerous as their main reason for their insecurity. Three of them also mentioned the lack of boundary walls as an issue to make them feel insecure. For the question "How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to aesthetic? Please explain why", all of the participants said that they are satisfied with the appearance of the house.

Questions about Community

With the question "How would you describe your level of satisfaction in relation to this neighbourhood? Please explain why", it was possible to discover that two residents were dissatisfied, and the other four were just only partially satisfied. The insecurity of the neighbourhood was mentioned by three of the interviewees as a major problem. Lack of public leisure places for children and adults was also cited by three people as one of the reasons for their dissatisfaction. Nevertheless, three of them pointed to the variety of shopping facilities as a good aspect of the neighbourhood. For the fifth question of the interview, which was "Do you believe there is any place or places in the neighbourhood that you could identify as a symbol or symbols of the community, such as a church, a park or a monument? If so, could you point them out and explain why?" Five of them said that there is not any symbol of the community in the neighbourhood, but one participant pointed to the local church as a place that represents the community. When asked the questions "Do you feel like being part of a community in this neighbourhood?", only one said that they do not feel like being part of a community, while the other five said that they have this sentiment, they said the reason for this was due to the fact that there is a strong social interaction between the neighbours, and that people in the community tend to help each other when necessary.

Questions for Those Who Made Alterations in the House

When asked "what were the main reasons that led you to make alterations in the house?", both interviewees said that they built boundary walls for security. One of

them said that they constructed a front veranda to use as a garage, and extended the kitchen because they thought it was too small. The other said that the bedroom and the bathroom in the backyard was built for guests, and the side veranda was built for the laundry. For the question “How would you describe your level of satisfaction in relation to the house today, i.e. after the alterations? Please explain why”, both said that they feel more secure and more satisfied with the alterations. When answering the last question “Could you affirm that you feel like this place is your home?”, the interviewees said that they feel like their house is their home mainly due to the fact that they own the house.

Questions for Those Who Did Not Make Alterations in the House

When answering to the questions “Why have you never made any alteration in the house?”, one said that it was because they are fully satisfied with the house, while the other said that the reason was because they could not afford it. The following question was “Do you plan to make alterations in the future? Please explain why.” One interviewee said that they would like to build bedrooms to let in the house, as they live alone and this could help them to increase their income. The other said that they would like to build a rear veranda for leisure. When asked “Could you affirm that you feel like this place is your home?” their answers were “yes”, and the reason is that they live in their own houses.

Questions for Those who rated the community facilities as low or very low

Both participants who responded to the question “Why have you rated shopping facilities of this neighbourhood as very low?”, said that there are different options of supermarkets and local shops in the neighbourhood, but they are too expensive, so they always have to commute to another area for shopping. For the question “Why have you rated public leisure places of this neighbourhood as very poor?”, they both said that it was due to the lack of public leisure places in the community. When asked “Why have you rated health centres of this neighbourhood as very poor?”, they said it was because there is only one health centre to meet the needs of various neighbourhoods, which makes it difficult for the patients to be seen. When answering the question “Why have you have rated nurseries of this neighbourhood as very poor?”, the interviewees said that it was because the capacity of nursery in the neighbourhood was not sufficient to meet the demand of the area. The following question was “Why have you rated schools of this neighbourhood as very poor?” One said that it is because there are no schools in the area, while the other said that

there is one school but it is not capable to meet the needs of the neighbourhood. The next question was “Why have you rated commuting in this neighbourhood as very poor?”, and they affirmed that the reason was because there are not enough buses for the population of the neighbourhood, and it takes them too long to go to city centre. The last question was “Why have you rated community events of this neighbourhood as very poor?” They responded to that question saying that there are not events in the community.

Results of Observation

House in the Original Format

The picture below was taken by Google Street View, and it illustrates the development in the way it has been delivered to the residents (see Figure 5-27), i.e. without any alteration.

Figure 5-27 - Houses of Nova Serrana without alterations of the residents.
Source: Google Street View.

Houses with Site Additions

Boundary walls were notably the main addition to the houses done by the residents (see Figure 5-28)

Figure 5-28 - Houses with boundary walls.

Houses with Alterations and Extra Rooms

Like in the previous housing estate, the residents of Vila Fernanda have not given permission for the bedrooms to be photographed. Nevertheless, the residents confirmed that the bedrooms are also usually built in the backyards, connected to the boundary walls (see Figure 5-29).

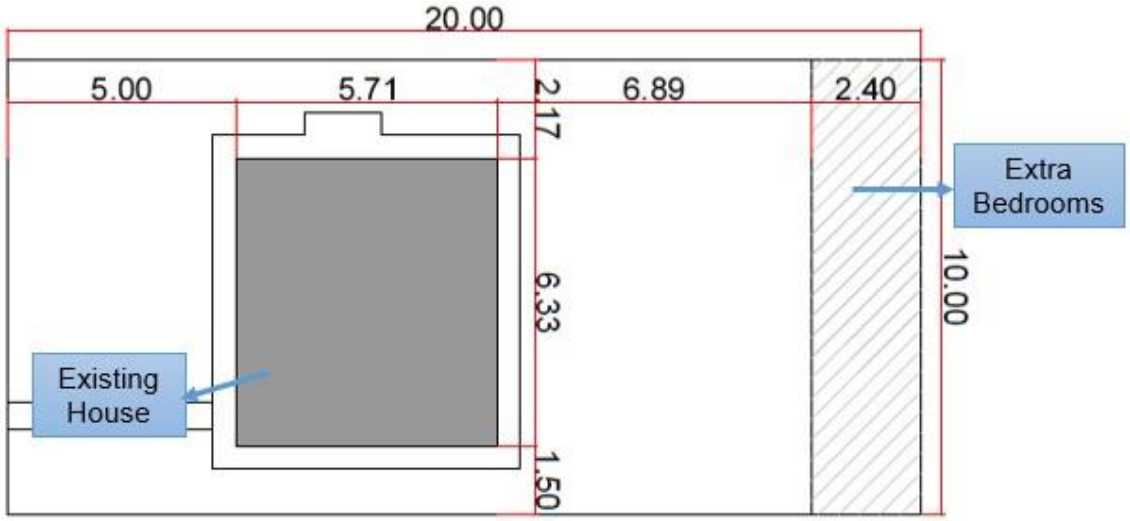


Figure 5-29 – House plot with bedrooms built to the boundary walls of the backyard.

There were various houses that could be seen with adaptations for home business, mainly local shops (see Figure 5-30).

Figure 5-30 - Shops built in the houses.

One of residents has demolished his entire house to build a supermarket (see Figure 5-31). The supermarket is the largest one in the estate, although there is a bigger one just in the outskirt of the housing estate (see Figure 5-32).

Figure 5-31 - Supermarket built in the place of a house.

Figure 5-32 - Medium-sized supermarket located on the outskirt of the estate.

Public Areas

There was no construction of any community facility in the public areas. One of these areas has been adapted by the residents as a football field (see Figure 5-33). As the photos were taken on a weekend, it was possible to observe that people in Vila Fernanda seem to have the habit of socialising on the pavements just outside their houses (see Figure 5-34).

Figure 5-33 - Goal Posts built by residents.

Figure 5-34 - Residents socialising in front of their houses.

5.2.3 Housing Estate 3 – Joao Alberto Amorim

Introduction and Plans

The social housing development Joao Alberto Amorim was built in 2013, and it contains 292 houses, with 1,168 residents. Based on a 95% confidence level and 10% confidence interval, the Sample Size Calculator has suggested a sample size of 72 houses. It is also located in the south west of the city, around 500m north from Vila Fernanda, the previous estate presented. It is located in the Special Social Interest Zone 2. Through the website of the city council, it has been possible to identify the public community services within a radius of 2km form the centre of Joao Alberto Amorim.

The development has 15 blocks, with a total of 295 plots. One of these blocks, which has an area of 1.4 hectares, is reserved for the city council to build community hub, as required by the municipal regulations. 292 plots are for housing, with the standard plots measuring 10x20m, which is the minimum permitted by the municipal regulations for a social housing development. There are three plots, each on the corner of one block, on the main street, reserved for commerce, such as shops, bars, and restaurants (see Table 5-9 and Figure 5-35). These plots are three times the size of a standard plot in the development, i.e. 600m^2. There are two different typologies of house. The standard one has 38.74m^2 (see Figure 5-36) and the other, which is adapted for people with special needs, has 43.82m^2 (see Figure 5-37). There are nine houses of this typology in the development, as the sponsor Caixa demands that at least 3% of the houses in a social housing development are adapted for people with special needs.

Table 5-9 – Number of blocks, plots and houses of the development.

Blocks (Total)	Blocks for Com. hub	Plots (Total)	Commercial Plots	Houses (Total)	Standard Houses	Houses for S.N.P.
15	1	295	3	292	283	9

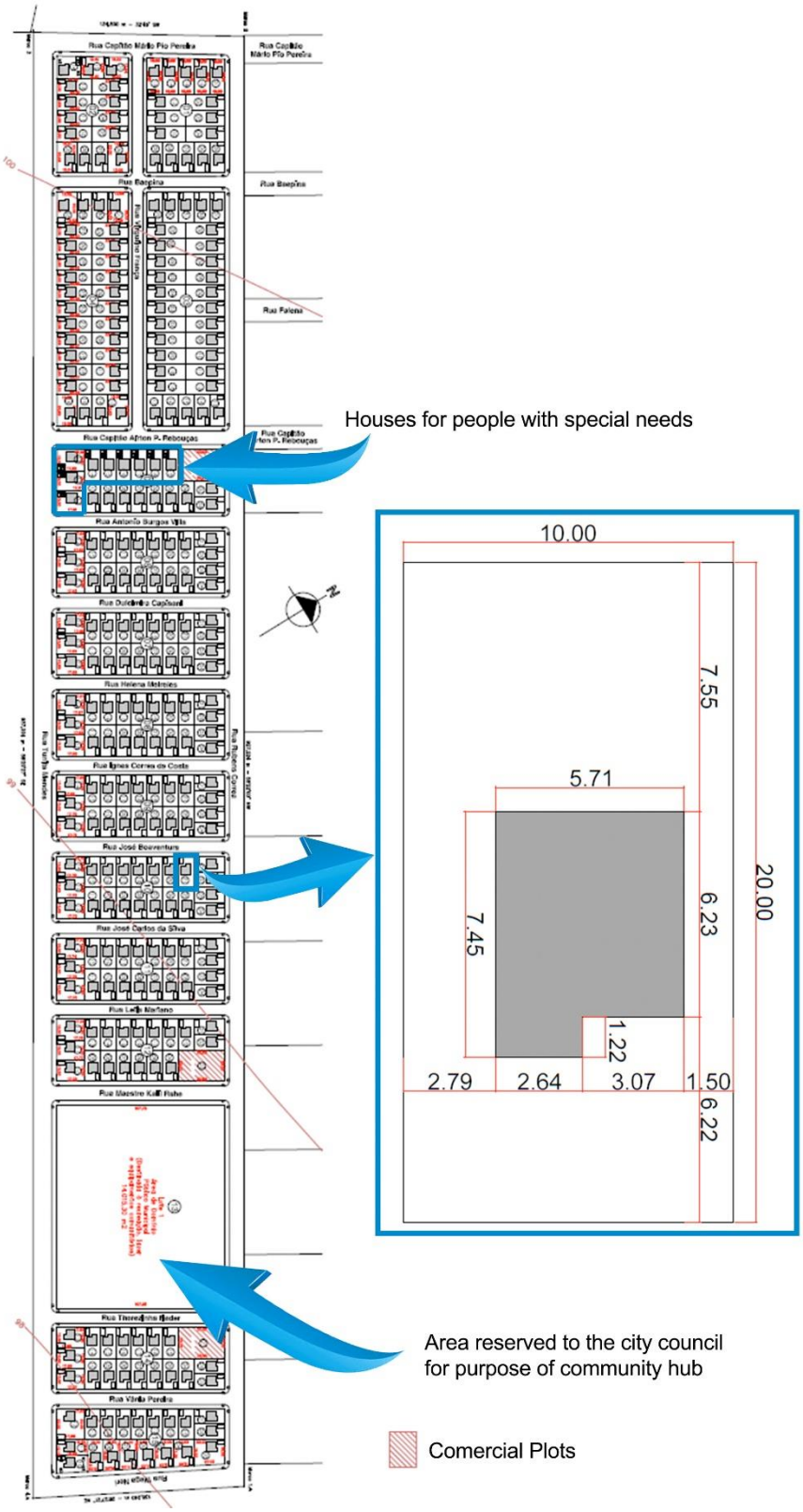


Figure 5-35 – Plan of the housing estate Joao Alberto Amorim.

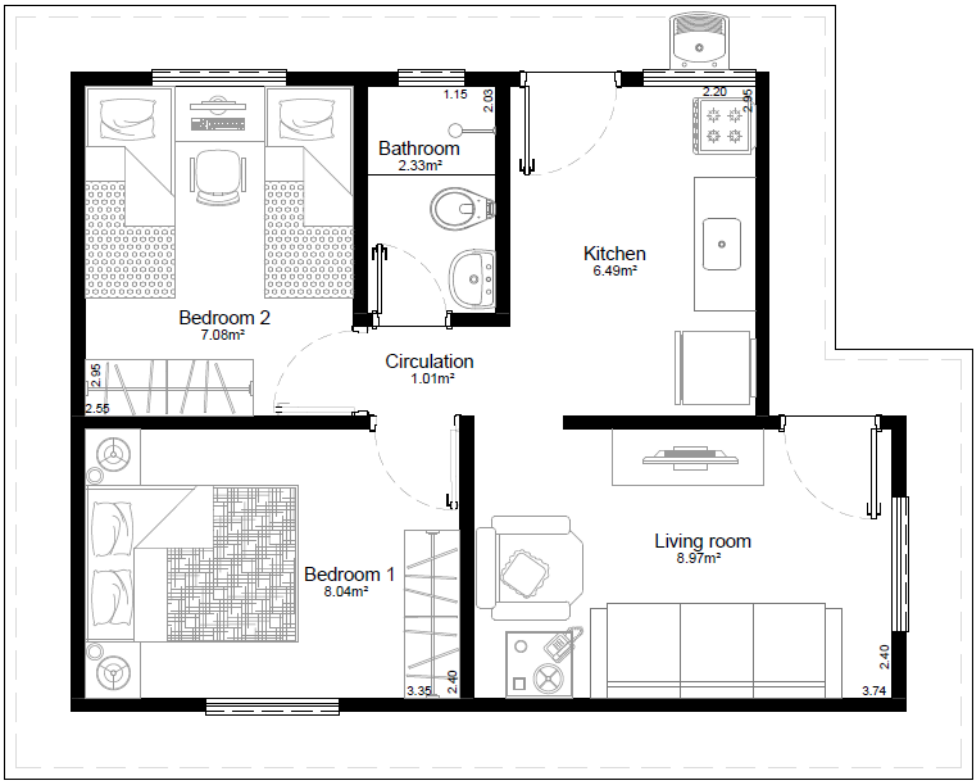


Figure 5-36 – Floor plan of a standard house of Joao Alberto Amorim.

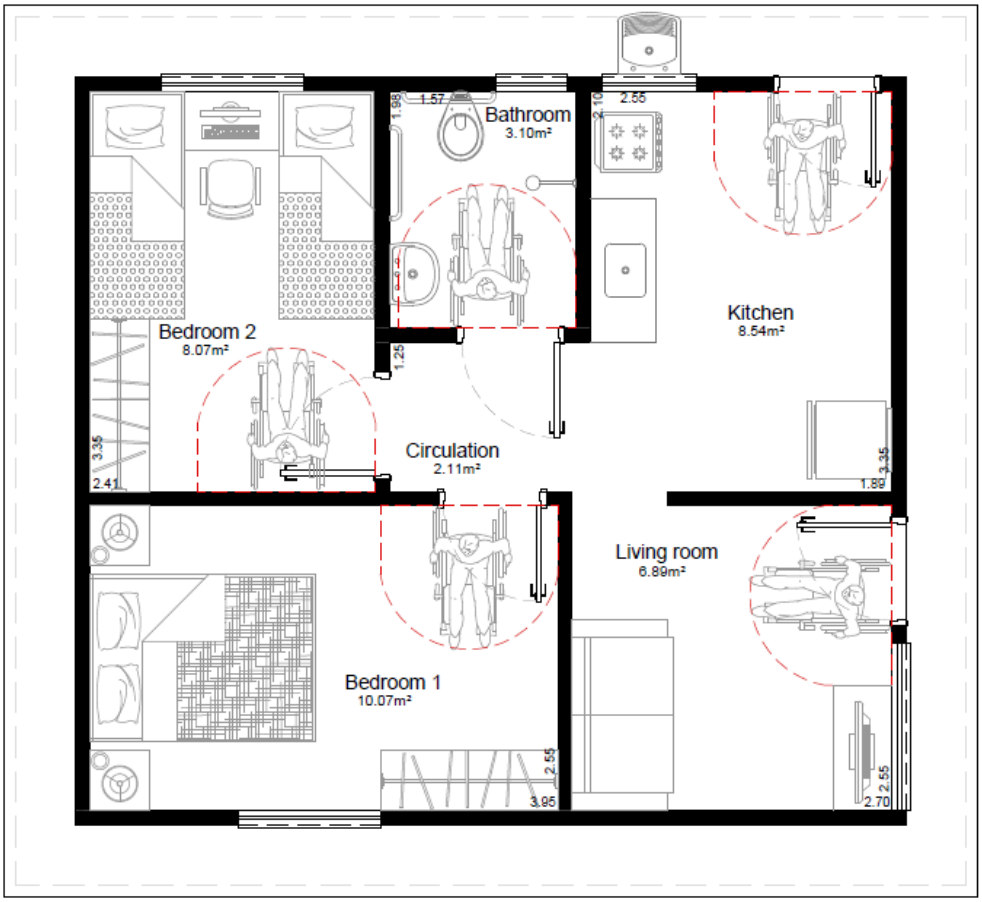


Figure 5-37 – Floor plan of a house of Joao Alberto adapted for people with special needs.

Results of Quantitative Data Collection

Length of Residence

Although 15% of the participants stated that they have lived in the area for the past three years, the official date of delivery of the houses was approximately two years before the questionnaires were applied, which matches to the length of residence of around 64% of the residents (see Figure 5-38).

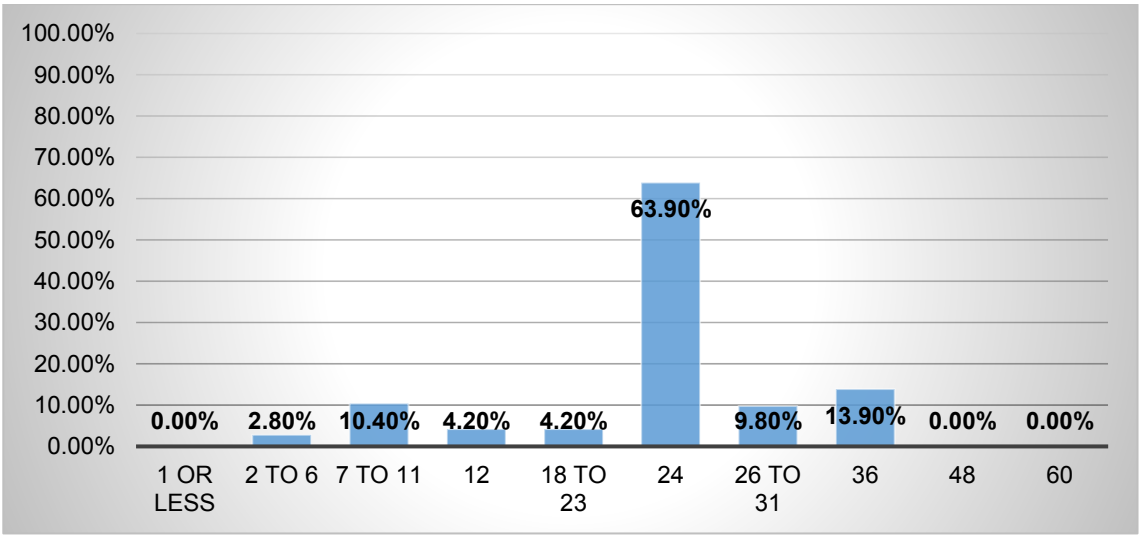


Figure 5-38 – Percentage of residents for each length of residence in months.

Number of Residents

The average of number of residents per house is the same of the previous developments, with four residents per house, being two adults and two children. Although more than a third of the houses have four residents, around 28% of the residents have a number of residents above the anticipated figure (see Figure 5-39).

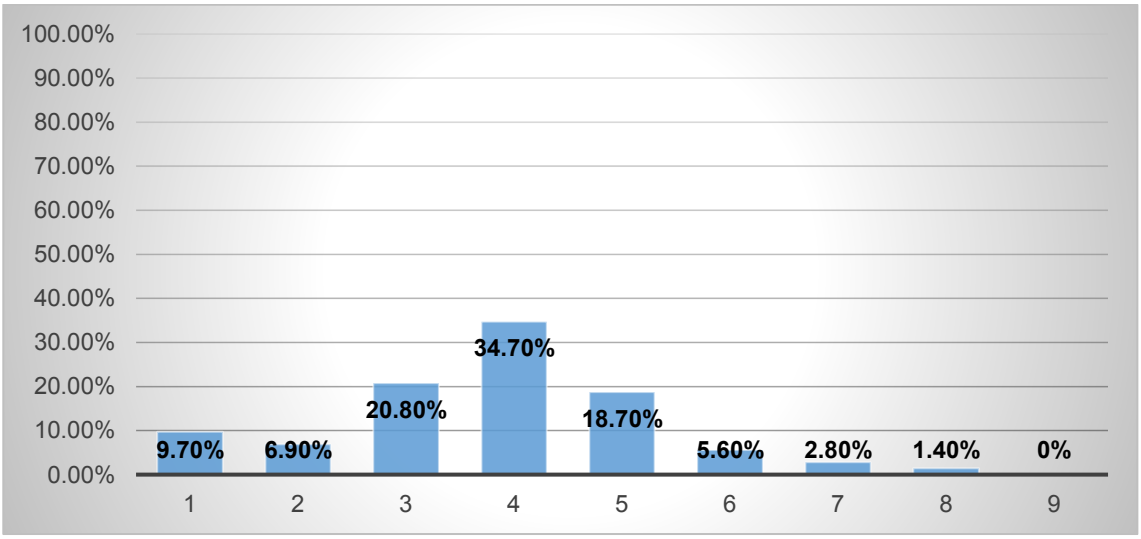


Figure 5-39 – Percentage of number of residents per house.

Around a half of the houses have two adults. Although the average is two children per house, only around a third of the houses are actually occupied by two children.

Employment Status of Residents

The fourth question was in regards to their employment status. The participants were offered four options, in which they were not limited to only one option:

- Employed/self-employed;
- Home business;
- Not working or studying;
- Students.

Fifty-eight houses, which represents 80.6% of the sample, have at least one person in employment. Although there are houses with up to six adults, there was not any house with more than three people working; and almost a half of the residences approached have only one person working. Eight of these houses have one person who runs a home business, which is not a significant number. Forty-four houses, which accounts for 62.5% of the sample, have at least one person who does not work nor study. Forty-six houses, which represents 63.9% of the sample, have at least one student. It includes both adults and children. Almost a third of these houses has two students.

Alterations and Extensions

Through the questions about alterations and extensions, it was found that fifty-four houses, i.e. 75% of the sample, have built boundary walls. The number of houses with side verandas is also the substantial at twenty-three, which represents 32% of the sample. Ten houses have added front veranda. There are also various combinations, such as the fourteen houses (equating to 19%) with boundary walls and side verandas (see Table 5-10).

Table 5-10 – Site Additions.

Site Additions	Number of houses	percentage
Boundary walls	**37**	**51**
Boundary walls and side veranda	**14**	**19**
Front veranda	5	7
Side veranda and front veranda	4	6
Side veranda	4	6
Boundary walls and rear veranda	1	1
Boundary walls and front veranda	1	1
Boundary walls, side veranda and rear veranda	1	1
Rear veranda	1	1

	Boundary walls	Side veranda	Front veranda	Rear veranda
Number of houses	54	23	10	3
Percentage	75	32	14	4

Further questions related to additional rooms and alterations to existing rooms. The only significant number is in relation to the bedrooms (see Table 5-11).

Table 5-11 – Summary of Additional Rooms.

Additional rooms	Number of houses	Percentage
One bedroom	5	7
One bedroom, one bathroom and one kitchen	1	1
One bedroom, two bathrooms, one kitchen, one storage and one living room	1	1
One bedroom, one bathroom	2	3
Two bedrooms	1	1
One storage	1	1
Kitchen	2	3

	Bed 1	Bed 2	Living	Bath1	Bath 2	Kitchen	Storage
Addition	10	1	1	4	1	2	4
Addition %	14	1	1	6	1	3	6

Commuting to Work

Amongst eighty-eight participants who have jobs, it was found that only five (6%) work in the neighbourhood. When asked about their length of time to commute to work, the responses ranged between five minutes and two hours, with the highest number of journeys lasting from sixteen to thirty minutes, and from forty-six to sixty (see Figure 5-40).

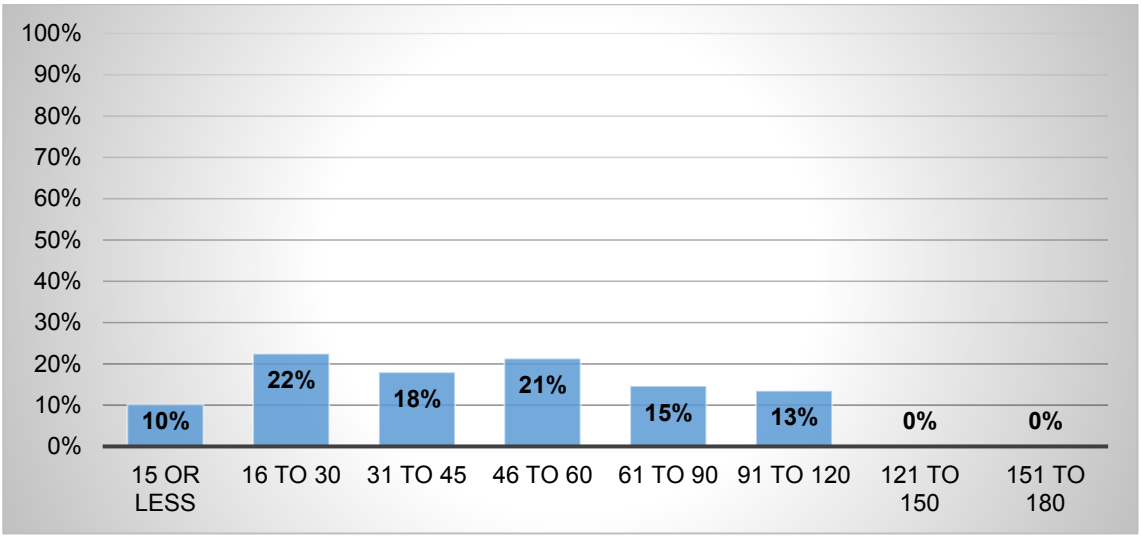


Figure 5-40 – Percentage of number of residents for each length of time to commute to work in minutes.

Amongst those who have job, around 47% of people commute to work in their own vehicle, and 45% by public transport, while only 8% go to work on foot or by bike (see Figure 5-41).

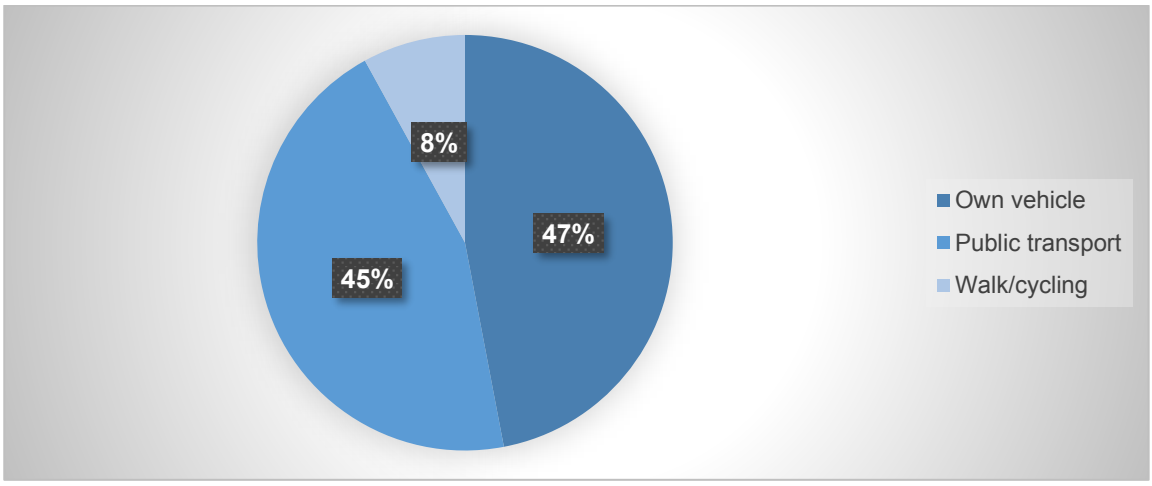


Figure 5-41 - Percentage of use of each form of transport to commute to the place where the residents work.

Commuting to Study

Amongst eighty-four students, including those who go to school, college, or university, only seven study in the neighbourhood. The range of time for people to commute to study was also between five minutes and two hours, with the highest number of journeys lasting from sixteen to thirty minutes (see Figure 5-42).

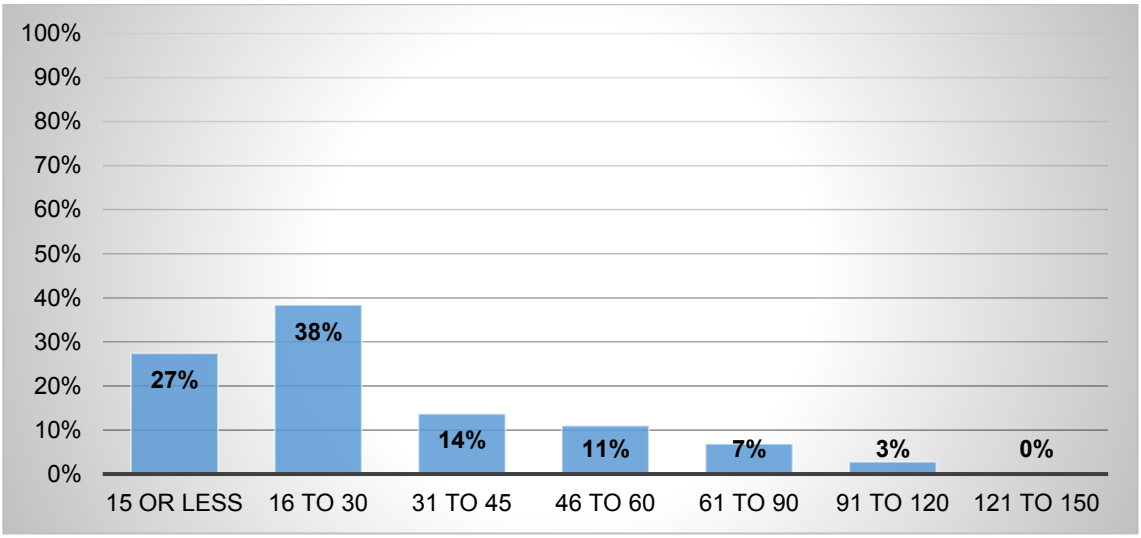


Figure 5-42 – Percentage of number of residents for each length of time to commute to the place where they study in minutes.

The majority of students, represented by 72%, use public transport, while 18% use their own vehicle, and 10% either walk or cycle (see Figure 5-43).

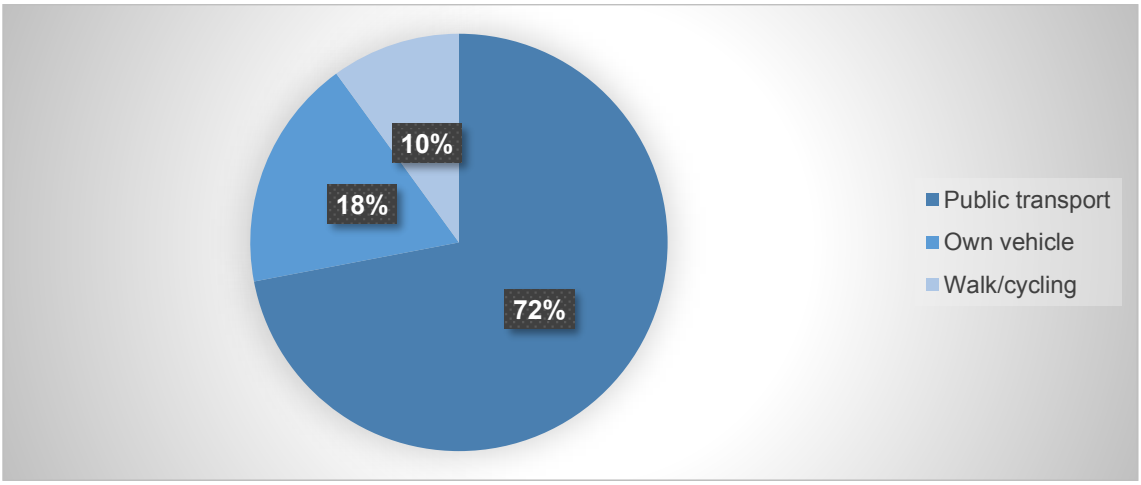


Figure 5-43 - Percentage of use of each form of transport to commute to the place where the residents study.

Community Facilities

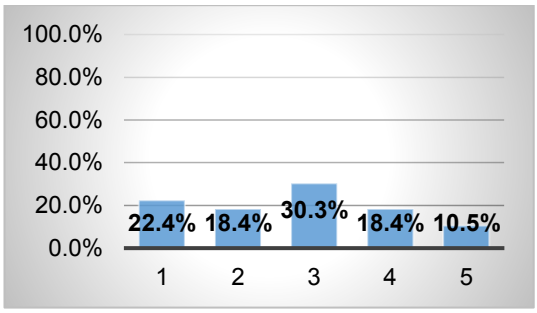
Most of the community facilities of Joao Alberto Amorim is viewed by the residents as very poor. On average, commuting is the only item that scored 4, and shopping is the only feature that scored 3, while most of the others were mainly scored as very poor (see Table 5-12).

Table 5-12 – Scores given by the residents to community facilities.

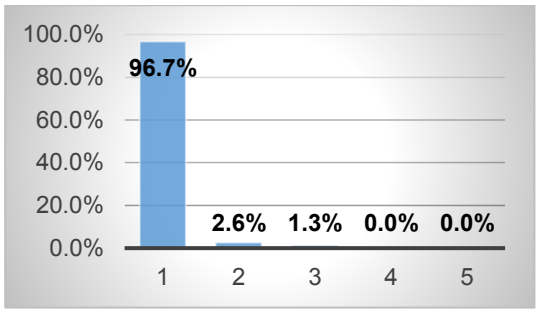
	Shop.	Leisure	Health	Nursery	School	Commuting	Community
Mean	3	1	1	2	2	4	2
Mode	3	1	1	1	1	4	1

The responses about shopping facilities were relatively evenly spread. When asked

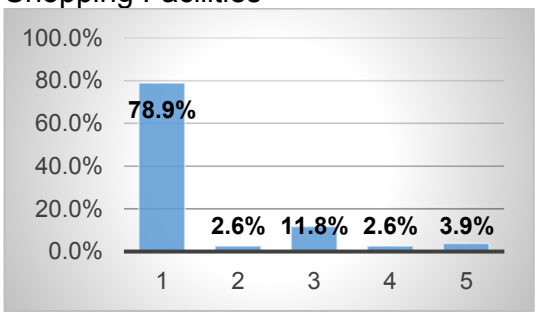
about leisure places in the neighbourhood, the vast majority, represented by 96.7%, consider this item as very poor. There was not any participant who rated public leisure places in the neighbourhood as good or very good. A similar picture is found in the result to the question about health centres. The provision of nurseries was scarcely better with almost 80% of people considering it to be very poor. The result for schools did not score any better with 77.3% considering the provision to be poor. Conversely, with a total of 67%, most of the participants viewed commuting as good or very good. However, with community events, the predominant pattern continued as 62.2% of respondents considered this item as very poor (see Figure 5-44).



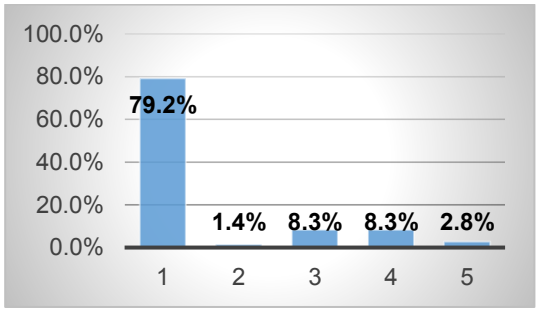
Shopping Facilities



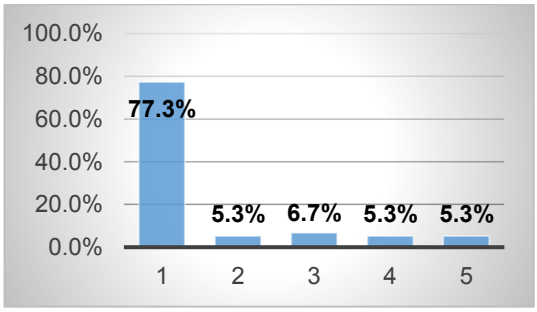
Public Leisure Places



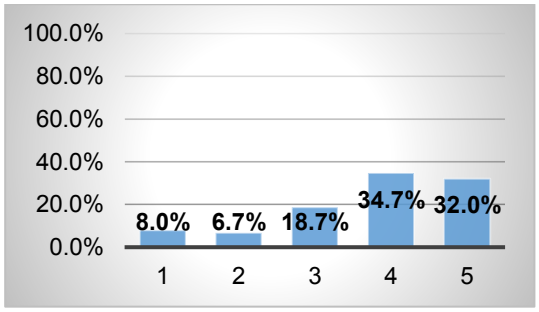
Health Centres



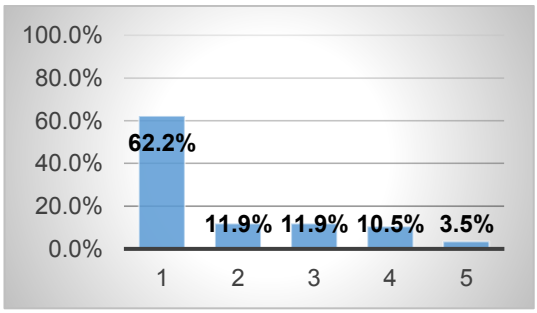
Nurseries



School



Commuting



Community Events

Figure 5-44 – Percentage of responses for each score for community facilities.

Results of Qualitative Data Collection

Questions about the Home

The first question in this section was “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why.” Four of the respondents said that the house satisfies their and their family’s needs. One has mentioned that the house is considerably better than the place they were living

before. Nevertheless, one parent with four children said they are only partially satisfied due to the insufficient number of bedrooms. Another one was not satisfied due to the size of the rooms, which are not large enough for their furniture. They also complained about the number of rooms, as four adults live in the house. The second question was “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alteration, in relation to security? Please explain why.” Only one said they felt secure, while the other five stated that they felt insecure. Two of them pointed to weaknesses with the windows and doors as the reason for their insecurity. One even mentioned that their house has once been broken into. The other two said that they feel insecure because the house does not have boundary walls. The third question was “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to aesthetic? Please explain why.” All of them said that they appreciate the appearance of the house, and that they are satisfied with that characteristic.

Questions about Community

The fourth question of the interview is the first question of the set about community. The question was “How would you describe your level of satisfaction in relation to this neighbourhood? Please explain why.” Three participants affirmed that they like the neighbourhood, but two of them mentioned the lack of community facilities, such as parks, schools, shopping facilities, and health centres as being a problem. The three other participants also complained about the lack of these community facilities as the reason for their dissatisfaction. The fifth question was “Do you believe there is any place or places in the neighbourhood that you could identify as a symbol or symbols of the community, such as a church, a park or a monument? If so, could you point them out and explain why?” The answers were unanimous – there is not any symbol of the community in the neighbourhood. The last question of this section was “Do you feel like being part of a community in this neighbourhood?” Only one said that they do not feel part of a community. Three have affirmed that they feel part of a community, and two of them added that there is a lot of interaction between the neighbours. Another said that they feel partially part of a community, as people do not interact very often with each other.

Questions for Those Who Made Alterations in the House

The first question in this section was “What were the main reasons that led you to make alterations in the house?” One of them has built an extra house in the backyard for his mother. The other has built boundary walls for privacy, and built an extra room in the backyard for storage. The second question was “How would you describe your level of satisfaction in relation to the house today, i.e. after the alterations? Please explain why.” One of them said that they were already satisfied, even before building the boundary walls and the storage, so it did not have a significant change. The other also said that they were also satisfied with the house and do not intend to make any other alteration. The last question was “Could you affirm that you feel like this place is your home?” Both of them said yes for this question, and one added that the previous house was rented and in poor condition, whereas now they pay to own a property in good condition.

Questions for Those Who Did Not Make Alterations in the House

The first question of this set was “Why have you never made any alteration in the house?” Both of them have said that the only reason was that they cannot afford to make alterations in the house. The next question was “Do you plan to make alterations in the future? Please explain why.” One of them, who has two children, said that they plan to build boundary walls for privacy and security, a veranda for leisure, and an extra bedroom for their children. The other, with three children, said that they intend to build a rear veranda and two extra bedrooms for their children in the future. The third and last question was “Could you affirm that you feel like this place is your home?” Both of them said yes, and one has said that the reason for this feeling is the fact that this was their own house.

Questions for Those Who Rated the Community Facilities as Low or Very Low

The initial question of this set was “Why have you rated shopping facilities of this neighbourhood as very low?” Both participants have stated that the reason is due to the lack of shopping facilities in the area. One of them has said that the nearest supermarket, which is not close according to them, is very expensive. The second question was “Why have you rated public leisure places of this neighbourhood as very poor?’ They both said that it was due to the fact that there are no leisure places in the neighbourhood. One has added that “There are a lot of children in the neighbourhood and there are no places for them to play”. The next question was “Why have you rated health centres of this neighbourhood as very poor?” Both said

that the reason for the discontentment was due to the fact that there is not any health centre nearby and the nearest one is in another neighbourhood. One of them said that there is not “any easy access to get there” and the other said that, besides being far, the health centre is not capable to meet the demand. The following question was “Why have you have rated nurseries of this neighbourhood as very poor?” and their responses were also that there is not any nursery nearby. The other question was “Why have you rated schools of this neighbourhood as very poor?” and the answer repeated – there are no schools in the neighbourhood. One has added that his children study far from home and they need to use two buses to go to school. The last question was “Why have you rated community events of this neighbourhood as very poor?” and their responses was that there are not any social events in the neighbourhood.

Results of Observation

House in the Original Format

There were no images on Google Street View in this area to illustrate the appearance of the houses when it had been recently built. However, there are houses without alterations which have been photographed for this purpose (see Figure 5-45).

Figure 5-45 – House without any external alteration.

Houses with Site Additions

Boundary walls were notably the most common alteration in the houses (see Figure 5-46).

Figure 5-46 – Houses with boundary walls.

A significant number of verandas could also be seen. It is notable that the majority of front verandas are used as garages (see Figure 5-47).

Figure 5-47 – Houses with front veranda.

A house adapted for people with special needs was also photographed (see Figure 5-48, Figure 5-49), in which the residents built side and front verandas, along with boundary walls. Besides being a garage, the residents also use this veranda as a place for leisure and socialising.

Figure 5-48 – Side and front verandas of house for people with special needs.

Figure 5-49 – Facade of house for people with special needs.

Houses with Alterations and Extra Rooms

During the questionnaires, the participants who built extra bedrooms said that these rooms have been built in the backyard of the houses. Nevertheless, none of them have given permission for these rooms to be photographed. However, the residents said that they usually build the bedrooms to the boundary walls of the backyards (see Figure 5-50).

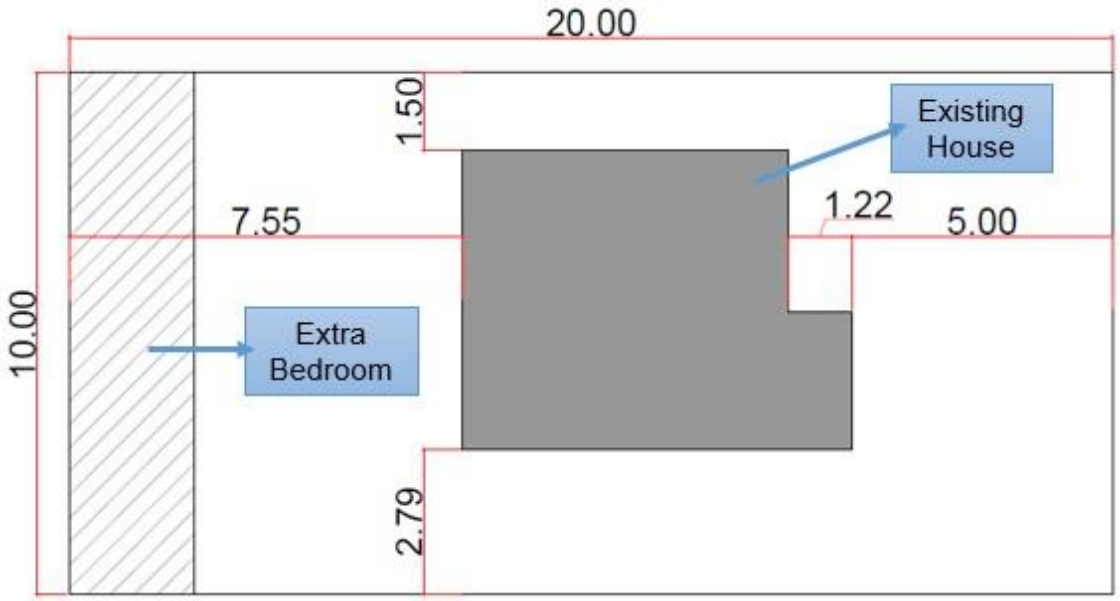


Figure 5-50 – House plot with bedrooms built to the boundary walls of the backyard.

From the outside, it was possible to identify houses in which the residents have built new kitchens (see Figure 5-51, Figure 5-52).

Figure 5-51 – House with new kitchen.

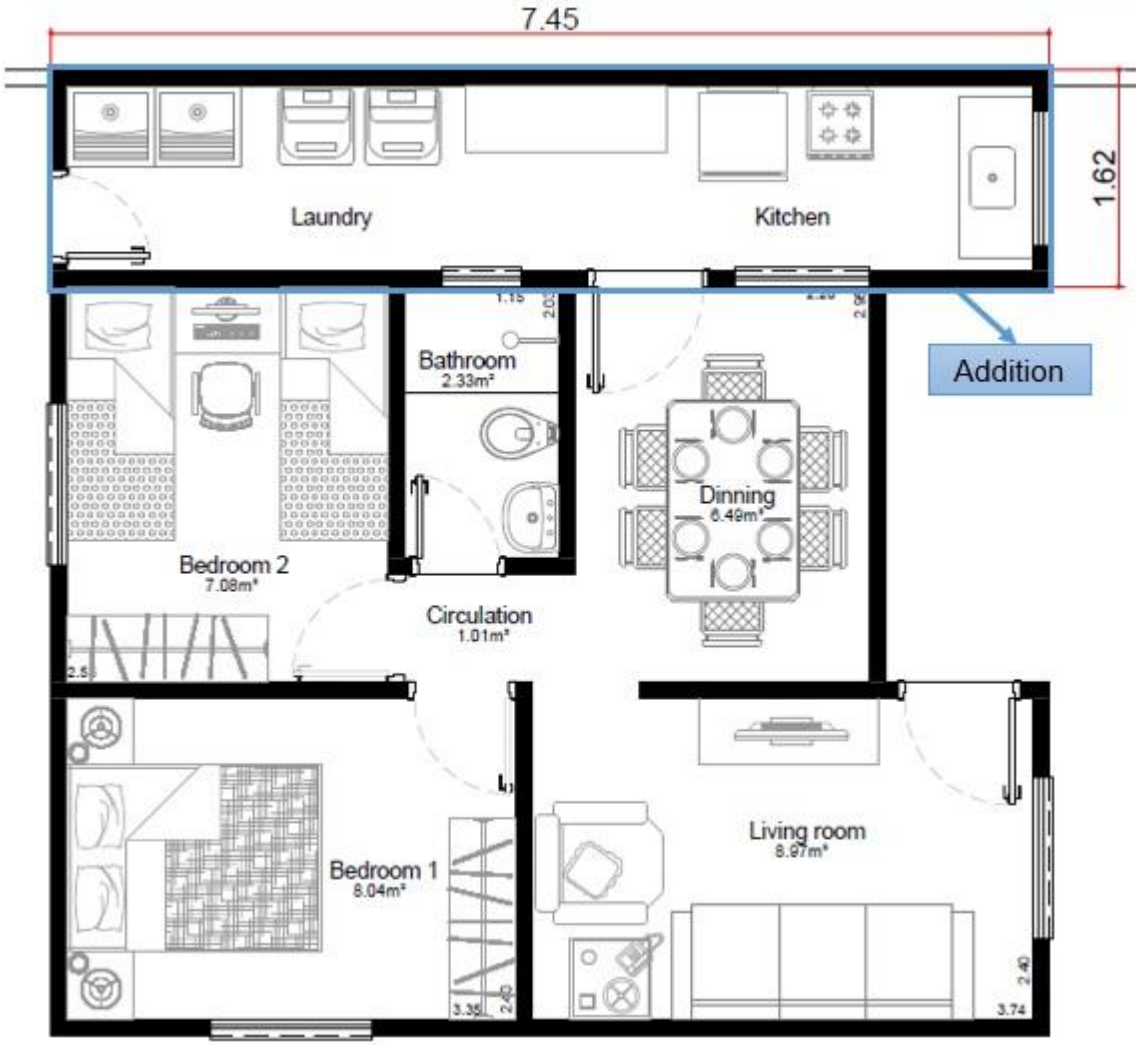


Figure 5-52 – Floorplan of house with new kitchen.

Public Areas

Due to the lack of public leisure places, it was possible to note that it is very common for children and young people to play in the streets in the social housing developments. In Joao Alberto, the residents have painted one of the streets to transform that space in an area for activities (see Figure 5-53).

Figure 5-53 – Paintings on the street.

5.2.4 Housing Estate 4 – Jose Maksoud

Introduction and Plans

Jose Maksoud was concluded in 2014. It has 482 houses and around 1,928 residents. Based on a 95% confidence level and 10% confidence interval, the Sample Size Calculator has suggested a sample size of 80 houses. It is located in the southwest of the city, in the Restrict Densification Zone. Although Joke Maksoud does not have any public community facilities within the estate, there are various public services in the adjacent district, such as schools, health centres, nurseries, bus station, street market, and police station. It is the most equipped with community facilities amongst the four social housing developments presented so far.

The development has fifteen blocks, with a total of 494 plots. Two of these blocks plus part of another are reserved for the city council to build community hub. One has an area of 0.63 hectares, other 2.9 hectares, and the other 1.6 hectares. Four-hundred and eighty-two plots are for housing, with the standard plots measuring 10x25m, while the others are reserved for private development (see Figure 5-54). Fifteen houses, which represents 3% of the total, are reserved for people with special needs. The standard houses have an area of 35.84m^2 (see Figure 5-55), while the houses for people with special needs have an area of 40.63m^2 (see Figure 5-56).

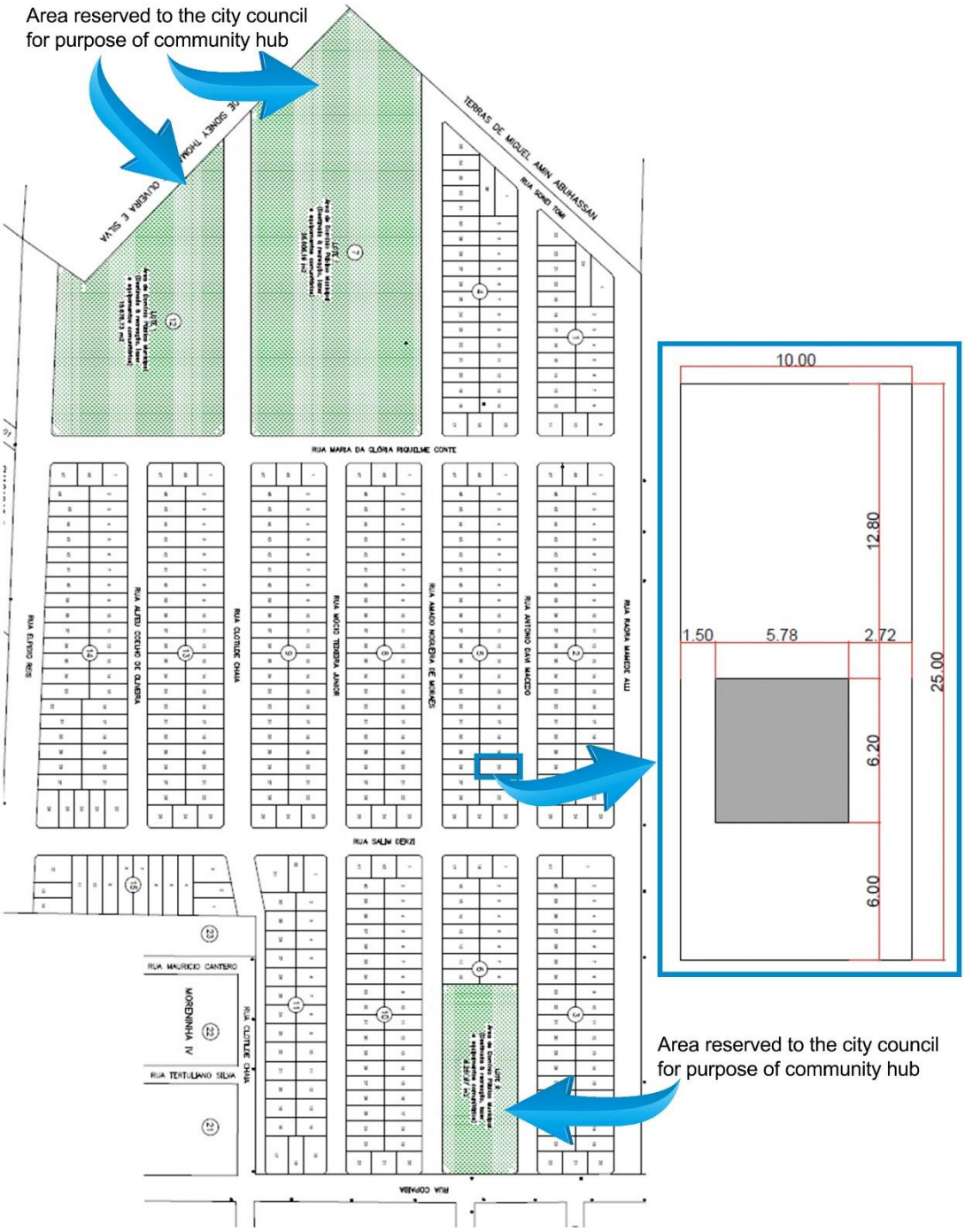


Figure 5-54 – Plan of Jose Maksoud.

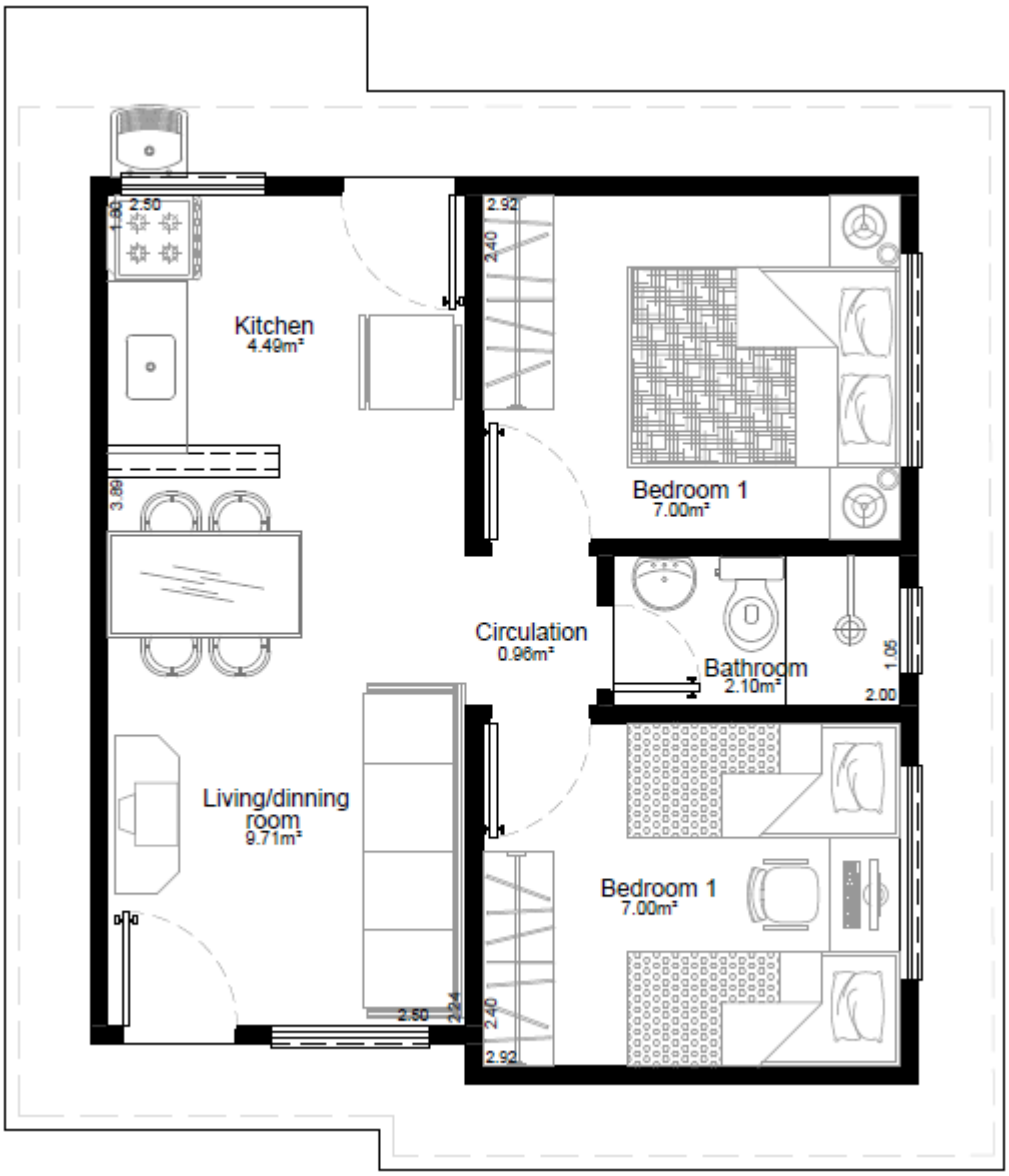


Figure 5-55 – Floor plan of a standard house of Jose Maksoud.

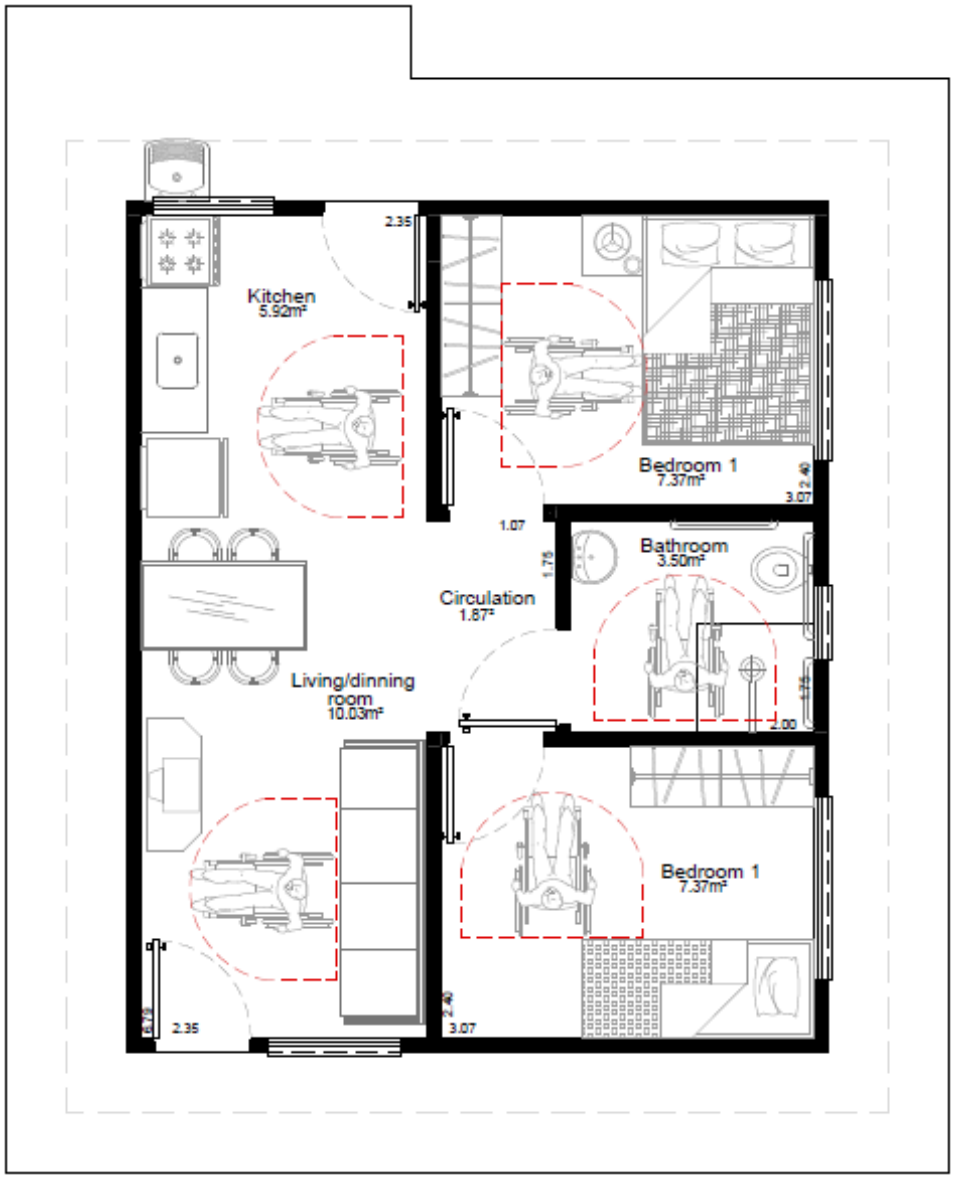


Figure 5-56 – Floor plan of a house of Jose Maksoud adapted for people with special.

Results of Quantitative Data Collection

Length of Residence

The length of residence identified in this research contrasts with the information provided by the city council about the year of delivery of the houses to the residents. The document provided by the city council about Jose Maksoud states that this social housing development was completed in 2014. Nevertheless, none of the participants has affirmed that they have lived in the estate for more than one year. Around 82.5% of the residents have lived in the area for between ten and twelve month (see Figure 5-57).

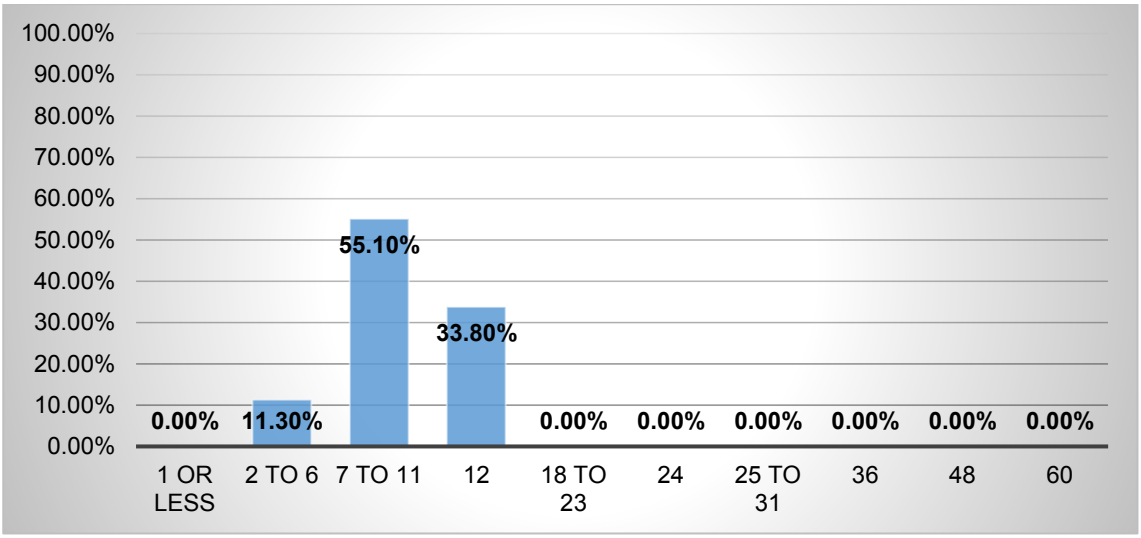


Figure 5-57 – Percentage of residents for each length of residence in months.

Number of Residents

Likewise, in the three previously presented housing developments, the average of residents of Jose Maksoud is four, with two adults and two children. However, one quarter of the houses have more than four residents (see Figure 5-58).

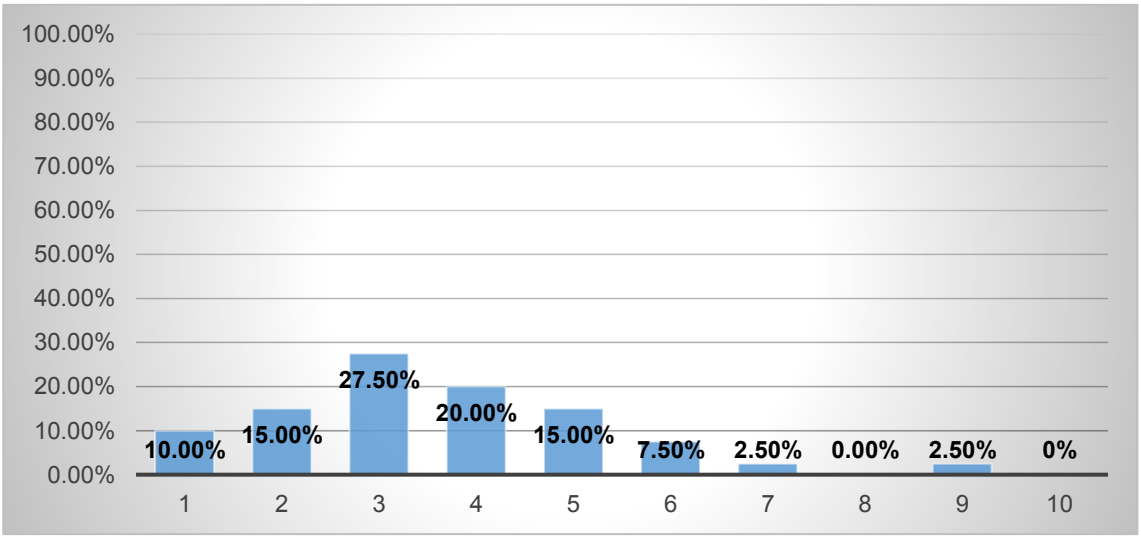


Figure 5-58 – Percentage of number of residents per house.

Almost 60% of the houses have two adults and around one quarter of the houses have only one child.

Employment Status of Residents

The fourth question was in regards to their employment status. The participants were offered four options, in which they were not limited to only one option:

- Employed/self-employed;
- Home business;
- Not working or studying;

- Students.

Fifty-seven houses, which represents 71.3% of the sample, have at least one person in employment. Although there are houses with up to six adults, there was not any house with more than three people working; and around 43.8% of the residences approached have only one person working. Seven of these houses have at least one person who runs a home business, which is not a significant number. Forty-four houses, which accounts for 55.5% of the sample, have at least one person who does not work nor study. Forty-eight houses, which represents 60% of the sample, have at least one student. It includes both adults and children.

Alterations and Extensions

With the set of questions about alterations and extensions, it was found that around one third of the houses built boundary walls. Front and rear verandas had also a significant number, as 31% of the houses constructed the former, and 26% of the residents built the latter (see Table 5-13). On another hand, houses with extra rooms had no expressive numbers, except from the kitchen, as 10% of the houses has built another kitchen (see Table 5-14). In terms of alterations, the figure is even less relevant**Error! Reference source not found.**.

Table 5-13 – Summary of Site Additions.

Site Additions	Number of houses	Percentage
Front veranda	**10**	**13**
Rear veranda	**9**	**11**
Boundary walls and front veranda	7	9
Boundary walls	4	5
Boundary walls and rear verandas	4	5
Boundary walls, front and rear verandas	4	5
Boundary walls, front, rear and side verandas	3	4
Boundary walls, front and side verandas	1	1
Boundary walls, rear and side verandas	1	1

	Boundary walls	Side veranda	Front veranda	Rear veranda
Number of houses	26	6	25	21
Percentage	33	8	31	26

Table 5-14 – Summary of Additional Rooms.

Additional rooms	Number of houses	%
Bedroom and kitchen	3	4
Two bedrooms	1	1
One bedroom and one bathroom	1	1
One bathroom, one kitchen, and one storage	1	1
One kitchen	1	1
One living room	1	1
Two bedrooms, one living room, one bathroom and one kitchen	1	1

	Bed 1	Bed 2	Living	Bath	Kitchen	Storage	Home business
Houses	7	2	2	6	8	1	2
Percentage	9	3	3	8	10	1	3

Commuting to Work

In contrast with the previous developments, around 15% of residences of Jose Maksoud, which accounts for twelve residencies, has at least one resident who works in the neighbourhood. The length of time that they spend to community to work varies from five minutes to two hours. Almost a third of the commuters takes between sixteen to thirty minutes to go to work, while a quarter takes between forty-six minutes and an hour. These were the most significant groups, followed by those who take between thirty-one and forty-five minutes to commute to work (17%), fifteen minutes or less (12%), and sixty-one to ninety minutes (10%) (see Figure 5-59).

The means of transport that people use to commute to work in Jose Maksoud highly contrasts with the previously presented social housing estates. The number of resident who use each mean of transport is well-balanced, with a slight majority who commutes on foot or cycling (see Figure 5-60).

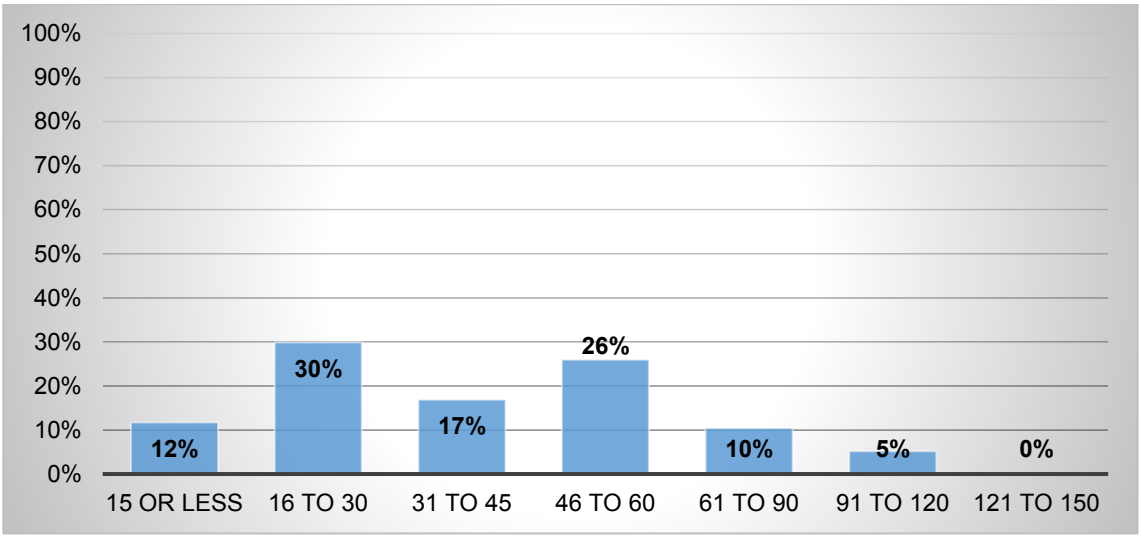


Figure 5-59 – Percentage of number of residents for each length of time to commute to work in minutes.

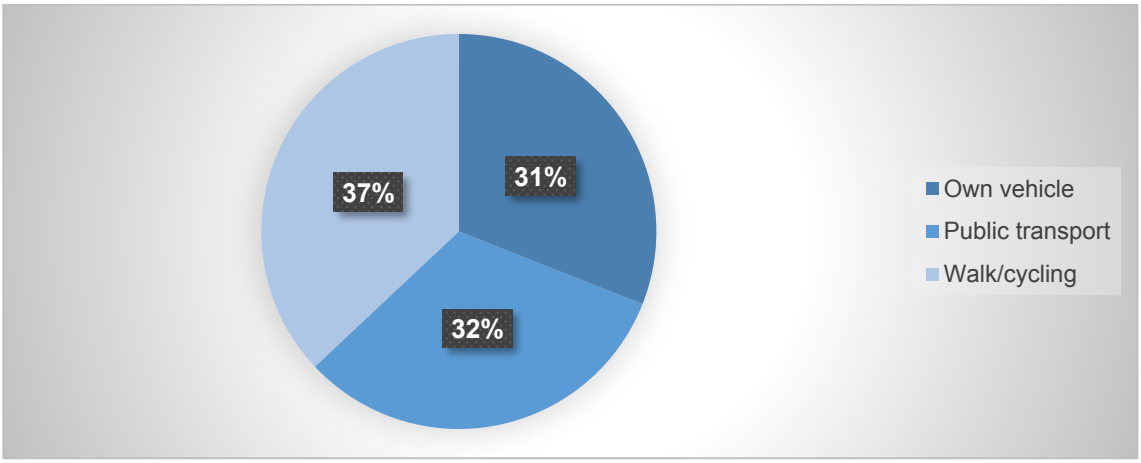


Figure 5-60 - Percentage of use of each form of transport to commute to the place where the residents work.

Commuting to Study

Thirty-three houses, which represents 41.3% of the sample, have at least one person who studies in the neighbourhood. This number is substantially higher than the ones presented in the previous housing estates. The majority of students, which represents 73%, takes less than fifteen minutes to commute, followed gradually by those who take between sixteen and thirty minutes (20%); forty-six minutes and one hour (4%); sixty-one to ninety minutes (2%); and ninety-one minutes to two hours (1%) (see Figure 5-61).

The vast majority of students, which accounts for 70%, commute on foot or cycling, while only 15% go to study using their own vehicle, and another 15% commutes using public transport (see Figure 5-62).

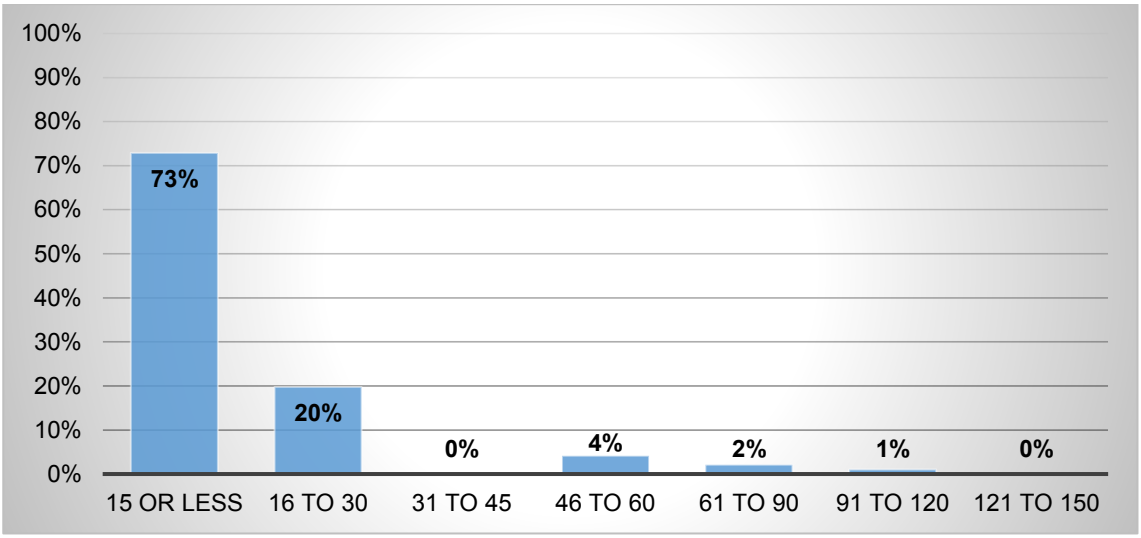


Figure 5-61 – Percentage of number of residents for each length of time to commute to the place where they study in minutes.

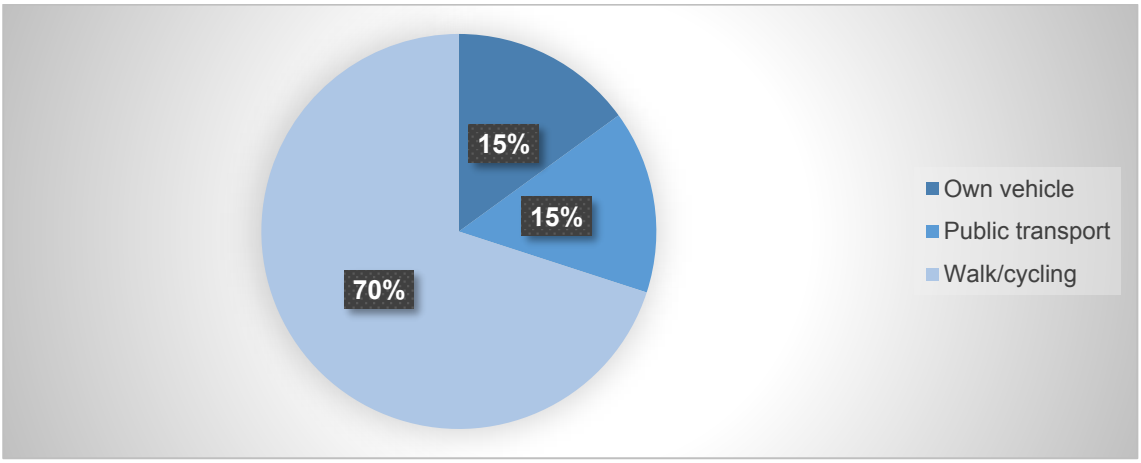


Figure 5-62 - Percentage of use of each form of transport to commute to the place where the residents study.

Community Facilities

The community facilities of Jose Maksoud were considered mostly as average and good, with the exception only for community events, which the average score was poor (see Table 5-15).

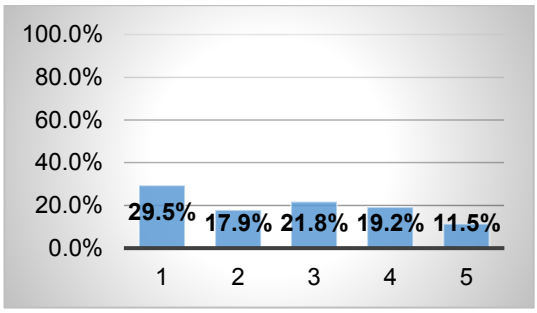
Table 5-15 – Scores given by the residents to community facilities.

	Shop.	Leisure	Health	Nursery	School	Commuting	Community
Mean	3	3	3	3	4	4	2
Mode	1	4	4	4	4	4	1

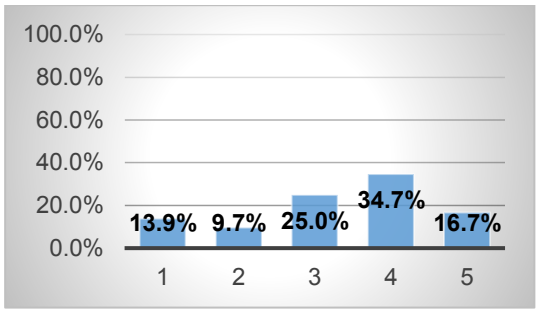
There was not any score that significantly stood out in the category of shopping facilities. The answers had a balanced and similar percentages. Around one in three residents' views leisure places in the community as good, 25.0% consider this item to be average, while 16.7% see leisure places in the community as very good. On another hand, 23.6% of the residents perceive this item as poor or very poor**Error!**

Reference source not found.. The answers in relation to health centres in the neighbourhood had similarities between very poor, average, and good, with the highest number concentrating in good (28.6%), followed by average (27.3%), and very poor (22.1%). Nurseries and schools had the best scores amongst the community facilities, as around 60% of the residents consider nurseries in the neighbourhood to be good or very good, and almost 80% of residents have the same opinion in relation to schools.

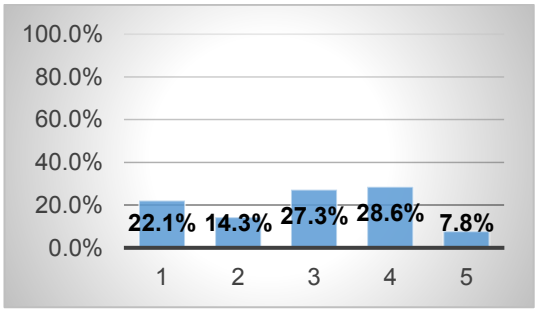
Around one in three residents stated that commuting in the neighbourhood is good, followed by 27.8% of people who see this item as very good. Nevertheless, 19% of residents have rated commuting in the neighbourhood as very poor. Community events had the worst scores, as more than a half of the residents consider this item to be very poor (see Figure 5-63).



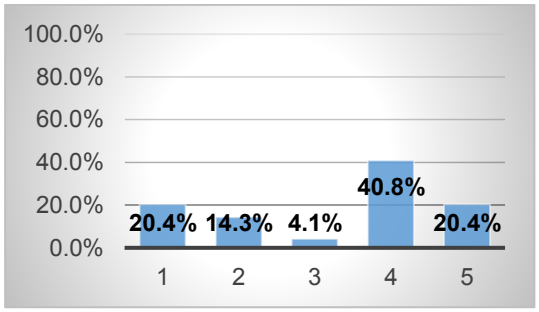
Shopping Facilities



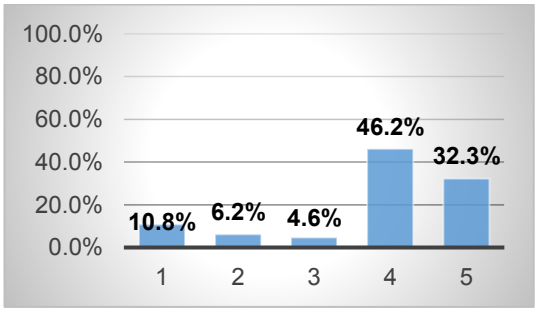
Public Leisure Places



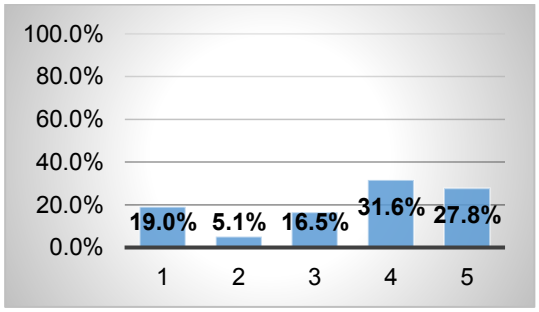
Health Centres



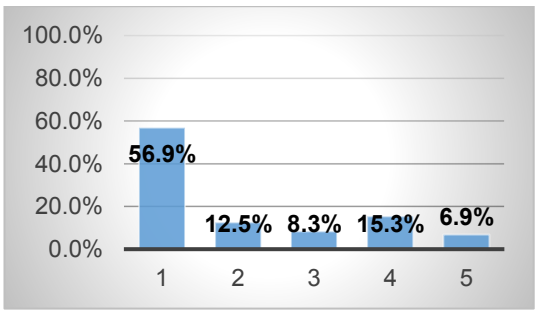
Nurseries



School



Commuting



Community Events

Figure 5-63 – Percentage of responses for each score for community facilities.

Results of Qualitative Data Collection

Questions about the Home

When answering the question “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why”, three interviewees said that they were satisfied with the house, especially in comparison with the place where they were living before. One said that they were partially

satisfied, as the house meets their family's needs, but they would prefer it to have a veranda. One of the dissatisfied participants complained about the small size of the rooms, while another said that the number of rooms was not sufficient to meet the needs of their family. The other dissatisfied interviewee said both issues are problematic – the number and the size of rooms. When asked the question "How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alteration, in relation to security? Please explain why", only two participants said that they feel secure in the house. One blamed the lack of boundary walls for their feeling of insecurity. The other two said that they feel insecure because the neighbourhood is dangerous; and the last insecure participant said both dangerous neighbourhood and lack of boundary walls are the reasons for their sentiment of insecurity in the house. For the question "How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to aesthetic? Please explain why", only one participant said that they are not satisfied. They said that the layout of the house is not flexible for extensions, as the roof is pitched to the front and to the back, "which gives less flexibility for future amendments in the house. If the roof was pitched to the sides, then the house could be expanded to the front and to the back", the participant stated.

Questions about Community

With the question "How would you describe your level of satisfaction in relation to this neighbourhood? Please explain why", only one participant said that they were satisfied. The other five said that they were partially satisfied. Two complained about the lack of community facilities in the development, while the other three said that there are only a few shops nearby and they are too expensive. Nevertheless, they said that they believe this is because the development is still fairly new. For the fifth question of the interview, which was "Do you believe there is any place or places in the neighbourhood that you could identify as a symbol or symbols of the community, such as a church, a park or a monument? If so, could you point them out and explain why?", four said that there is not any symbol of the community, but two mentioned the public Sport Centre nearby as a possible symbol, as according to the residents, it is a famous development in the whole city. When asked the questions "Do you feel like being part of a community in this neighbourhood?", only one said that they feel like being part of a community, while the other five said that they never or rarely interact with the neighbours.

Questions for Those Who Made Alterations in the House

When asked “what were the main reasons that led you to make alterations in the house?”, one said that they built another house in the backyard, but the existing rooms were too small. They also added that this is common in the neighbourhood, as the small size of the rooms makes it difficult to suit the furniture. The participant said that now they left the existing house for their grandfather, sister, and niece, as they moved to the house they built in the backyard. The other interviewee also built another house in the backyard, where their daughter lives with her husband. The interviewee also said that they constructed a veranda for leisure and to function as a drawing room, as the living room is too small, and the veranda is bigger and cooler. For the question “How would you describe your level of satisfaction in relation to the house today, i.e. after the alterations? Please explain why”, both said that they feel substantially more satisfied with the alterations, as now the house suits their needs better. When answering the last question “Could you affirm that you feel like this place is your home?”, the interviewees said that they feel like their house is their home. One said that the reason is because this is the place where they live with their family, and the other said that it is due to the fact that they own the house.

Questions for Those Who Did Not Make Alterations in the House

When answering to the questions “Why have you never made any alteration in the house?”, they both said that the reason is because they cannot afford making any addition or alteration. The following question was “Do you plan to make alterations in the future? Please explain why.” One said that they would like to build a veranda to cover the laundry, and the other said that they would like to build boundary walls for privacy and security, and an extra bedroom for their children. When asked “Could you affirm that you feel like this place is your home?” their answers were “yes”. One said that it is due to the fact that this is the house where they live with their family, and the other said that it is because it is their own house.

Questions for Those Who Rated the Community Facilities as Low or Very Low

Both participants who responded to the question “Why have you rated shopping facilities of this neighbourhood as very low?”, said that most of the local shops in the neighbourhood are too expensive, so they always have to commute to other areas for shopping. For the question “Why have you rated public leisure places of this neighbourhood as very poor?”, they both said that it is because there is not any public leisure place inside the housing estate, only in the district nearby. When

asked “Why have you rated health centres of this neighbourhood as very poor?”, they said there should be exclusively for Jose Maksoud, as the closest one is not always able to meet the demand. When answering the question “Why have you have rated nurseries of this neighbourhood as very poor?”, the interviewees said that it is because the nearest nursery is not sufficient to meet the demand of the region, and there should be one in the social housing estate. The following question was “Why have you rated schools of this neighbourhood as very poor?” The answer was again that there should be a school within the area of Jose Maksoud. The next question was “Why have you rated commuting in this neighbourhood as very poor?”, and they affirmed that the reason was the distance from the city centre. The last question was “Why have you rated community events of this neighbourhood as very poor?” They answered to that question saying that there are not events in the community.

Results of Observation

House in the Original Format

The picture below shows a standard house in Jose Maksoud without any alteration (see Figure 5-64).

Figure 5-64 – Houses of Jose Maksoud without alterations of the residents.

Houses with Site Additions

As most of the residents have been living in Jose Maksoud for less than one year, most of the boundary walls have still the appearance of not being fully completed yet (see Figure 5-65). Houses with front veranda are also common (see Figure 5-66).

Figure 5-65 – Houses with boundary walls.

Figure 5-66 – House with front veranda.

Houses with Alterations and Extra Rooms

The kitchen was the most common extra room built in the houses (see Figure 5-67), followed by extra bedrooms (see Figure 5-68).

Figure 5-67 – House with new kitchen.

Figure 5-68 – House with extra bedroom.

One of the participants built a hairdresser's salon in front of their house (see Figure 5-69). Another built a local shop. Nevertheless, it was possible to note that there are houses with people working with home business without significant alterations in the house (see Figure 5-70).

Figure 5-69 – Extra room for home business.

Figure 5-70 – House with home business without extra rooms.

Public Areas

There is not any public leisure place in Jose Maksoud. Nevertheless, it is located next to a Sport Centre, which counts with different activities, such as swimming pools, stadiums, cultural hubs, amongst others (see Figure 5-71, Figure 5-72).

Figure 5-71 – Map showing the distance between Jose Maksoud and the Sport Centre.

Figure 5-72 – Sport Centre near Jose Maksoud.

Like in other social housing developments, it was notable that people in Jose Maksoud have the habit of socialising on the pavements just outside their houses, and children playing on the streets (see Figure 5-73).

Figure 5-73 – Residents socialising in front of their houses, and children playing on the streets.

5.2.5 Housing Estate 5 – Ary Abussafi De Lima and Gregorio Correa

Introduction and Plans

Ary Abussafi De Lima and Gregorio Correa was completed in 2014. It has 315 houses and 1,252 residents. Based on a 95% confidence level and 10% confidence interval, the Sample Size Calculator has suggested a sample size of 74 houses. It is located in the northwest of the city, in the Secondary Consolidation Zone. There are no public community services within the development or in the adjacent neighbourhoods. Nevertheless, a few public community facilities can be found within a radius of 2km from the centre of the housing estate.

The development has 10 blocks, with a total of 163 plots. Part of two of these blocks are reserved for the city council to build community hub. One has an area of 0.49 hectares, and the other 1.3 hectares. One-hundred and sixty plots are for housing, with the standard plots measuring 15x20m, while the others are reserved for private development. The standard houses are semi-detached, and each plot has two houses, except for seven plots measuring 10x20m, which have detached houses (see Figure 5-74). The project was approved under the third version of Caixa requirements. Therefore, all houses have the same area, as they all must be accessible for people with wheelchair. The semi-detached houses have an area of 42.80m^2 (see Figure 5-75), while the detached houses have an area of 42.18m^2 (see Figure 5-76).

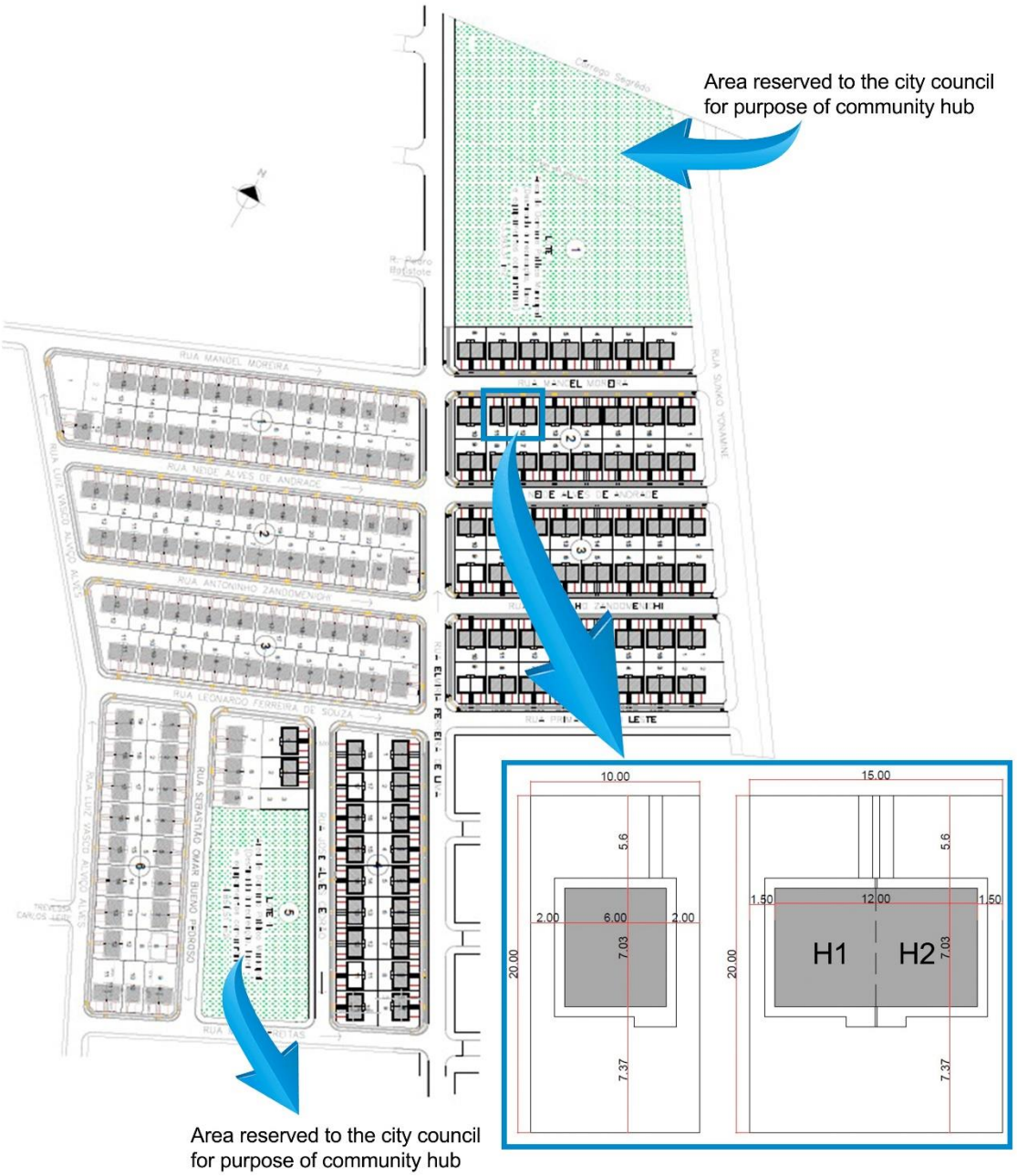


Figure 5-74 – Plan of the housing estate Ary Abussafi De Lima and Gregorio Correa.

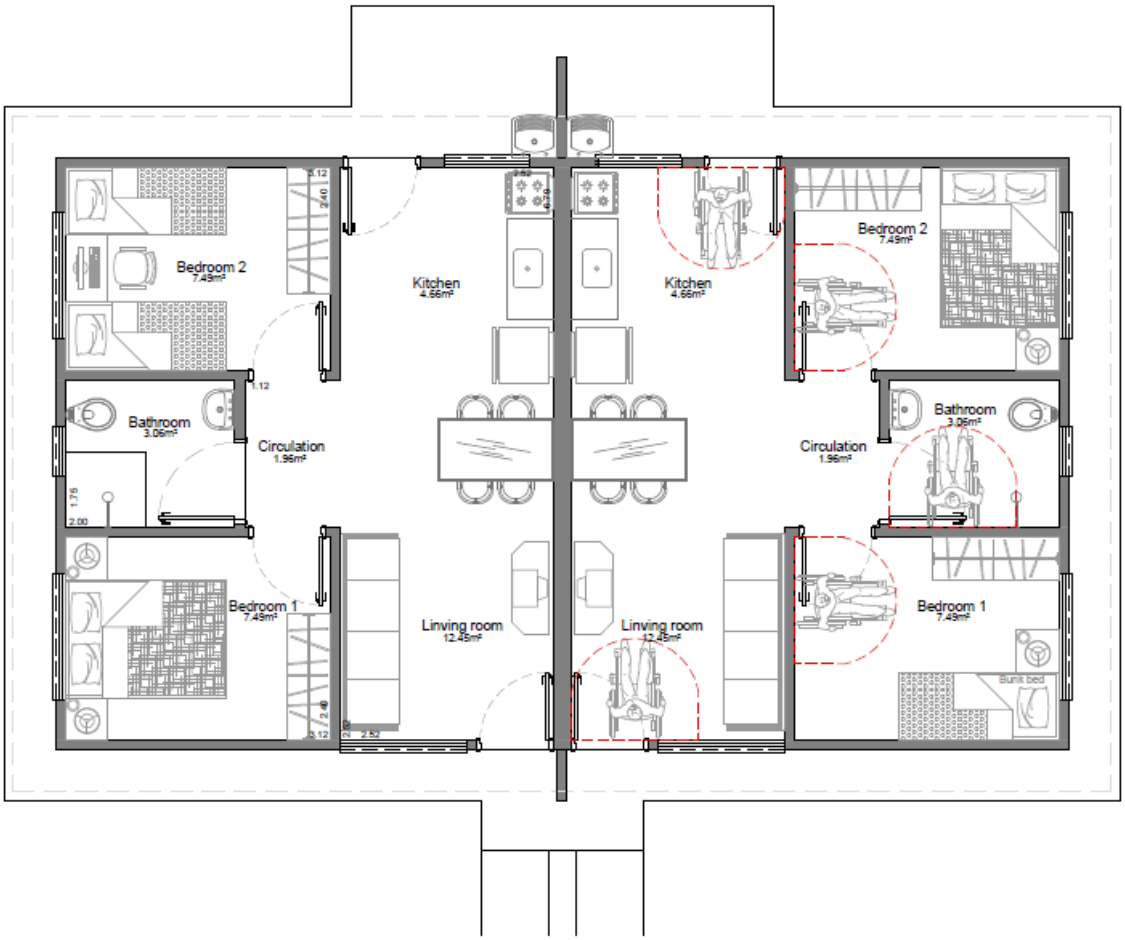


Figure 5-75 – Floor plan of a standard house of Ary Abussafi De Lima and Gregorio Correa.

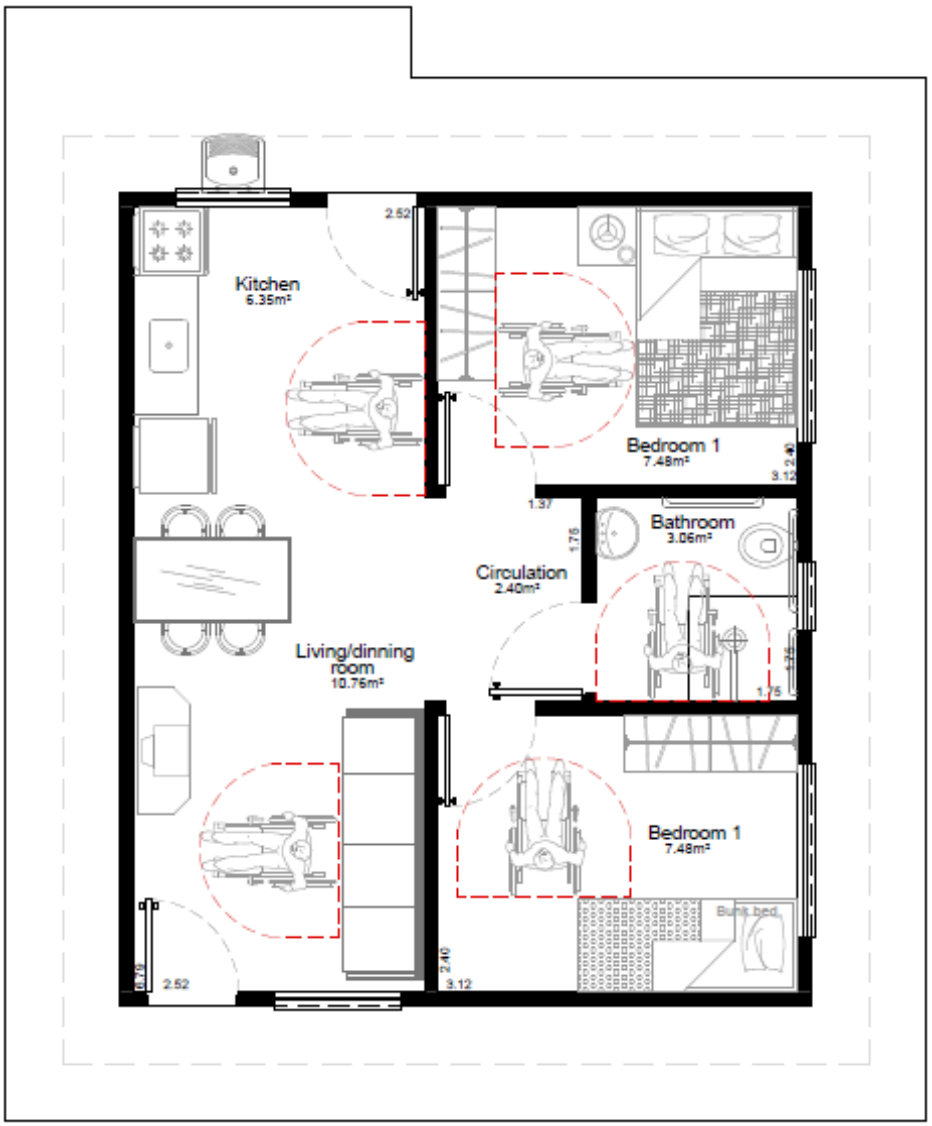


Figure 5-76 – Floor plan of a detached house of Ary Abussafi De Lima and Gregorio Correa.

Results of Quantitative Data Collection

Length of Residence

More than two thirds of the residents have lived in the area for one year (see Figure 5-77).

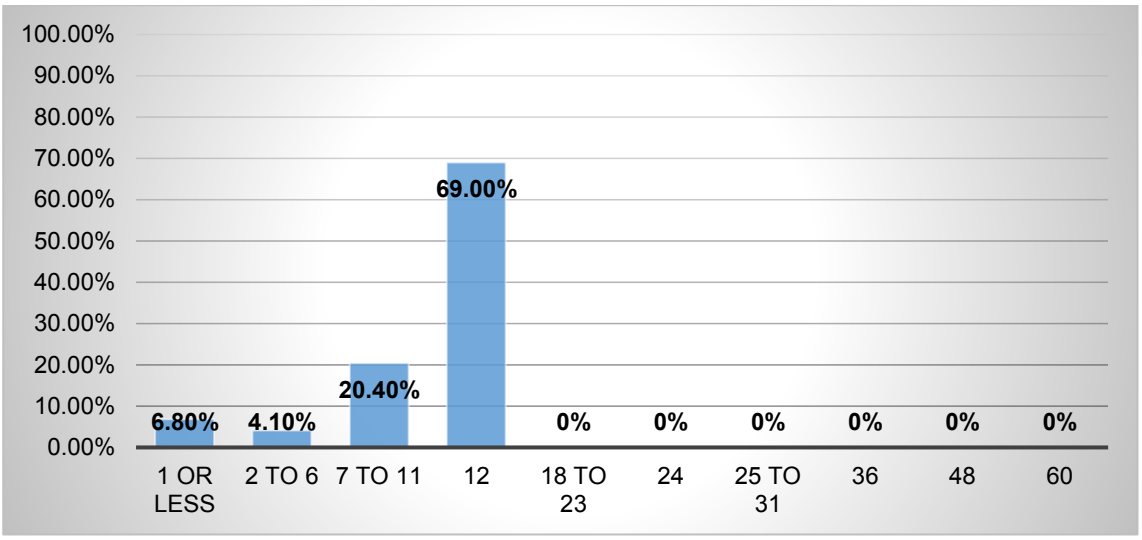


Figure 5-77 – Percentage of residents per length of residence in months.

Number of Residents

The average of residents of Ary Abussafi De Lima and Gregorio Correa is four, with two adults and two children. Nevertheless, around 40% of the houses have more residents than the anticipated figure (see Figure 5-78).

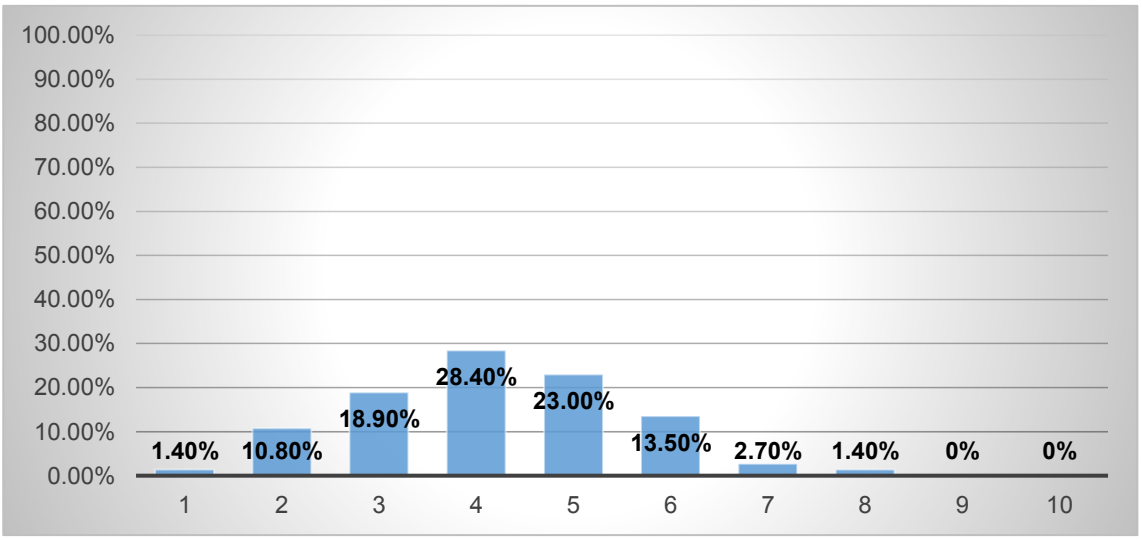


Figure 5-78 – Percentage of number of residents per house.

More than 60% of the houses have two adults. More than a half of the house have either two or three children.

Employment Status of Residents

The fourth question was in regards to their employment status. The participants were offered four options, in which they were not limited to only one option:

- Employed/self-employed;
- Home business;
- Not working or studying;

- Students.

Sixty-three houses, which represents 85.1% of the sample, have at least one person in employment. About 43.2% of the houses have only one person who works. Five of these houses have at least one person who runs a home business, which is not a significant number. Forty-two houses, which accounts for 56.8% of the sample, have at least one person who does not work nor study. Forty-four houses, which represents 59.5% of the sample, have at least one student. It includes both adults and.

Alterations and Extensions

Like in the previous development, around a third of the houses built boundary walls. Approximately 10% of the houses built verandas, and 16% constructed rear verandas (see Table 5-16). Only five houses built extra room, three of them being for commerce (see Table 5-17). Only one house has altered existing rooms.

Table 5-16 – Summary of Site Additions.

Site Additions	Number of houses	Percentage
Boundary walls	**13**	**18**
Rear veranda	5	7
Boundary walls and rear veranda	5	7
Front veranda	2	3
Boundary walls and front veranda	2	3
Boundary walls and side veranda	1	1
Side veranda	1	1
Boundary walls, front, rear and side verandas	1	1
Boundary walls, front and rear verandas	1	1
Boundary walls, front and side verandas	1	1

	Boundary walls	Side veranda	Front veranda	Rear veranda
Number of houses	24	4	7	10
Percentage	33	5	10	16

Table 5-17 – Summary of Additional Rooms.

Additional rooms	Number of houses	%
Bedroom, bathroom, and kitchen	2	3

	Bed 1	Bed 2	Living	Bath	Kitchen	Storage	Home business
Houses	2	0	0	0	2	0	3
Percentage	3	0	0	0	3	0	4

Commuting to Work

Only one participant said that they work in the neighbourhood. The length of time that residents spend to community to work ranges from 5 minutes to two hours. The two most common groups of time to commute to work were between sixteen and thirty minutes (32%), and between ninety-one minutes and two hours minutes (28%) (see Figure 5-79). More than a half of the residents commute to work using their own vehicle (see Figure 5-80).

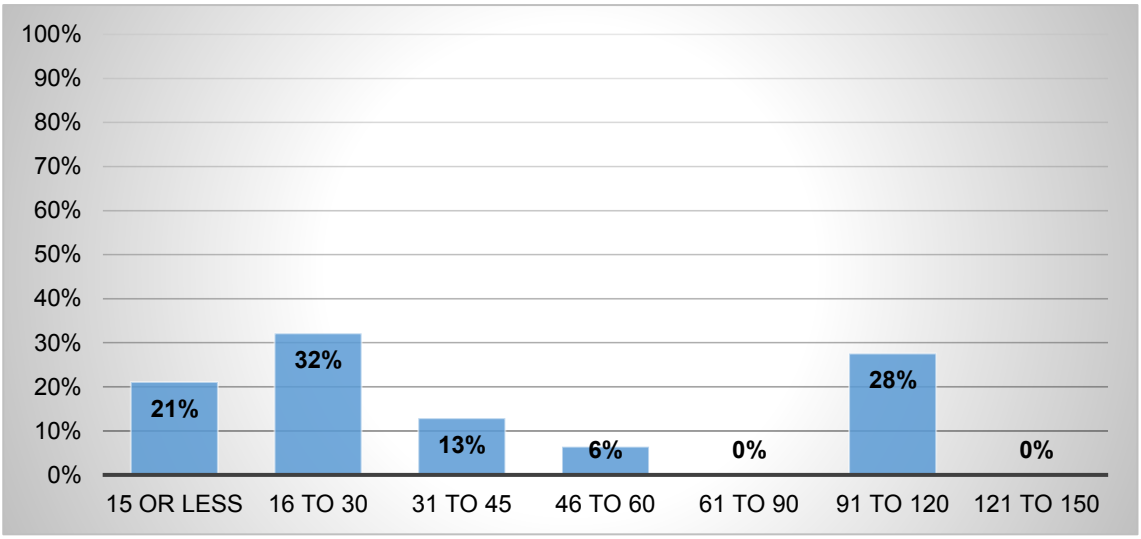


Figure 5-79 – Percentage of number of residents for each length of time to commute to work in minutes.

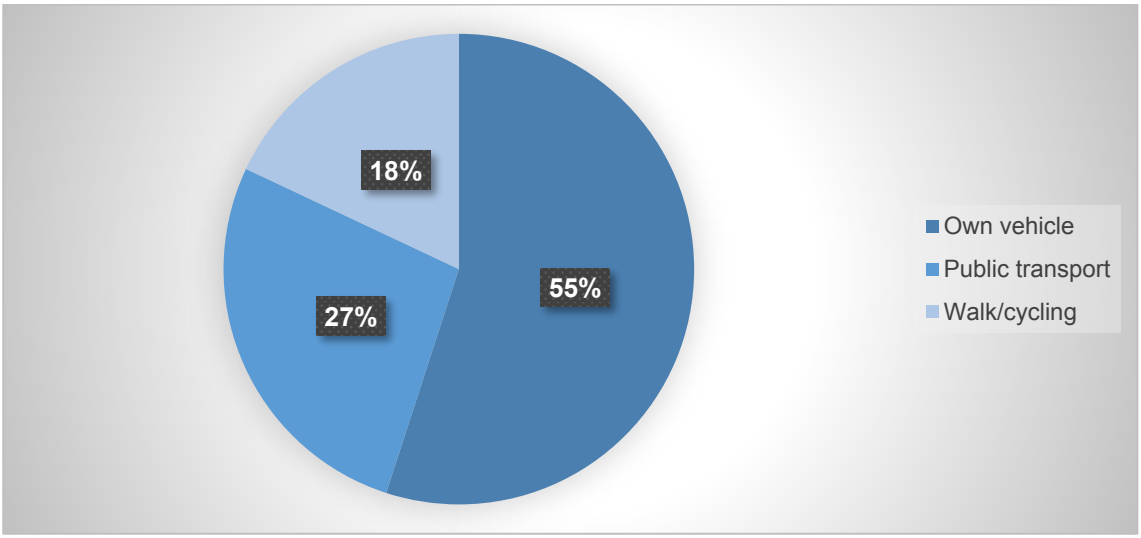


Figure 5-80 – Percentage of use of each form of transport to commute to the place where the residents work.

Commuting to Study

None of the participants' study in the neighbourhood. The length of time that people take to commute to study varies from 5 minutes to two hours (see Figure 5-81). Only around one quarter of students commute on foot or by bike, while 42% go to study using their own vehicle, and 34% use public transport (see Figure 5-82).

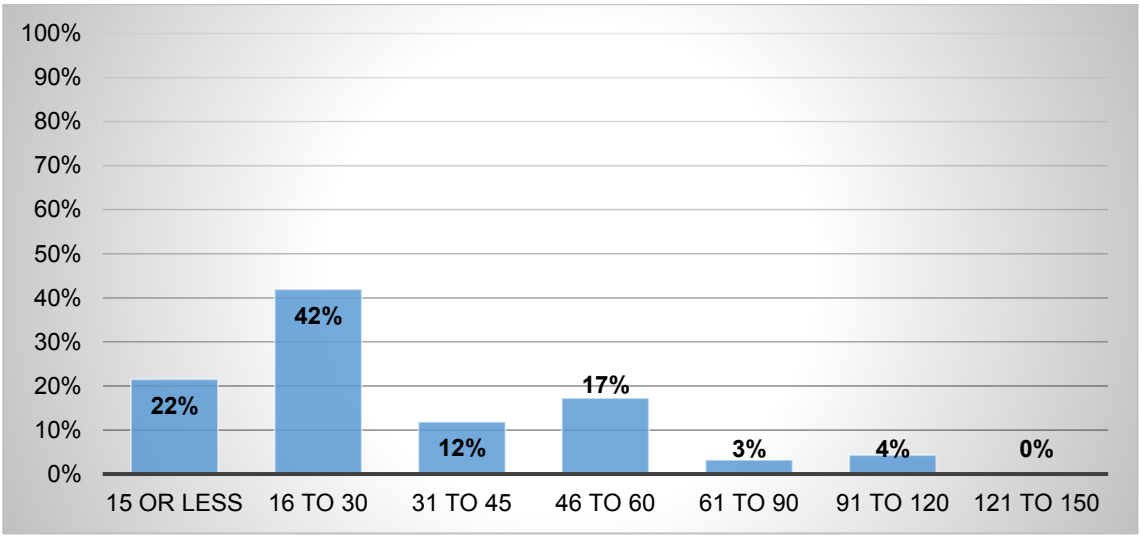


Figure 5-81 – Percentage of number of residents for each length of time to commute to the place where they study in minutes.

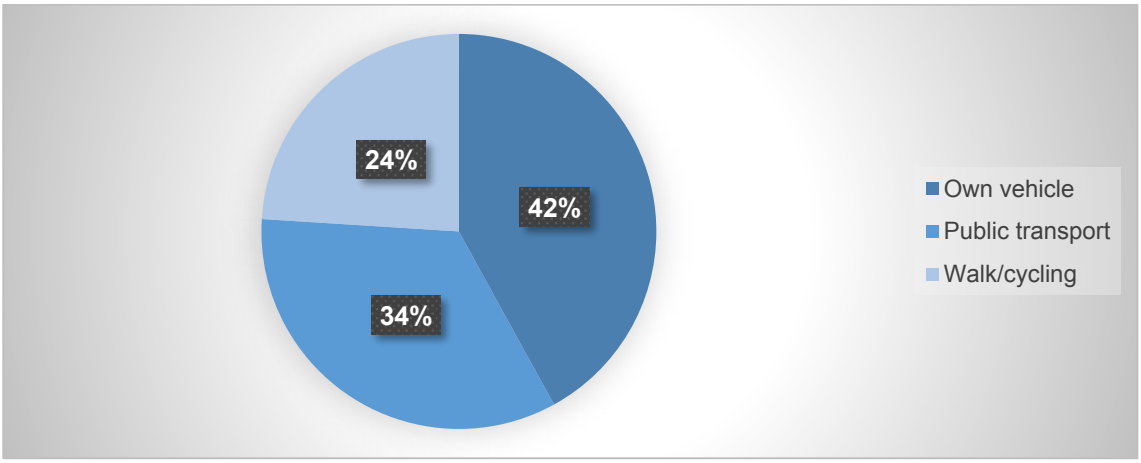


Figure 5-82 – Percentage of use of each form of transport to commute to the place where the residents work.

Community Facilities

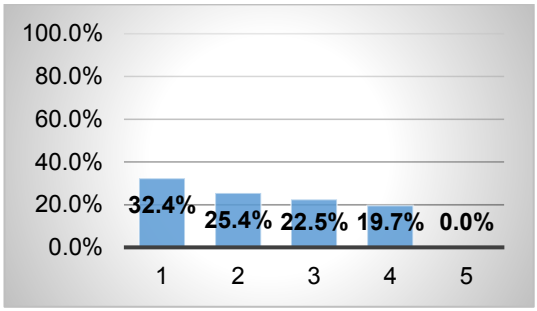
Commuting had the best scores amongst the community facilities of Ary Abussafi De Lima and Gregorio Correa, which was viewed by the residents as good. The other items, on another hand, were mostly considered as poor or very poor (see Table 5-18).

Table 5-18 – Scores given by the residents to community facilities.

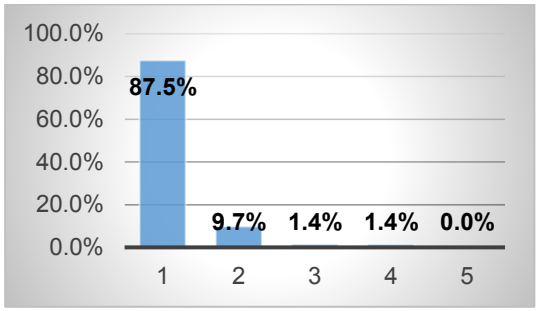
	Shop.	Leisure	Health	Nursery	School	Commuting	Community
Mean	2	1	1	1	2	4	1
Mode	1	1	1	1	1	4	1

Around a third of the participants affirmed that the shopping facilities in the neighbourhood are very poor. None of the participants consider this item as very good. Represented by almost 90%, the vast majority of residents see the public leisure places in the neighbourhood as very poor. More than two thirds of

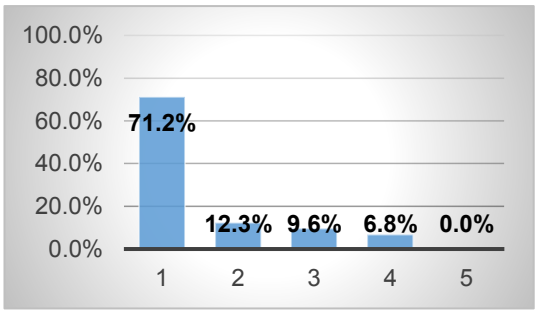
participants also view health centres and nurseries in the area as very poor. School had also similar scores. In contrast with the previous items, commuting is considered as good or very good by more than 70% of residents. Community events had the worst scores, as 90% of residents view it as very poor (see Figure 5-83).



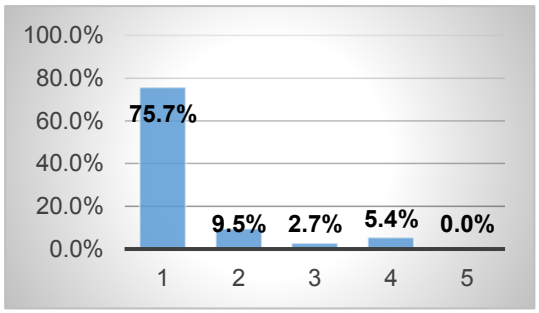
Shopping Facilities



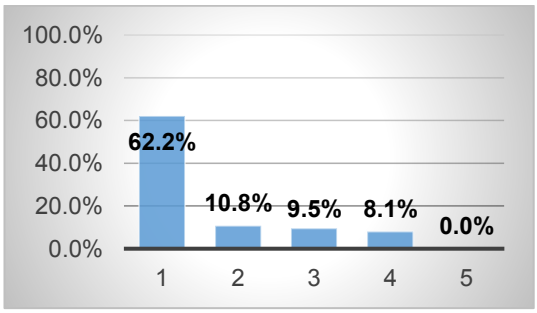
Public Leisure Places



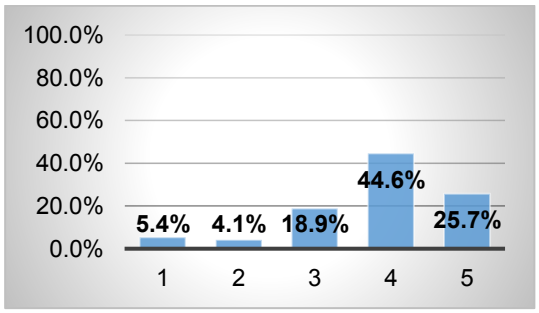
Health Centres



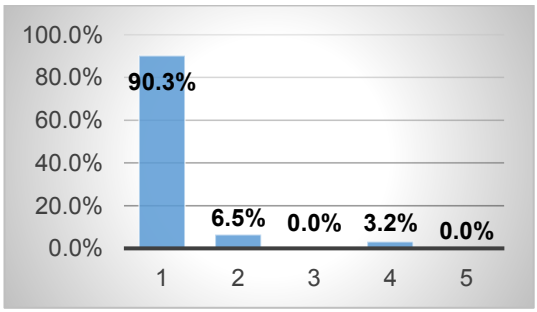
Nurseries



Schools



Commuting



Community Events

Figure 5-83 – Percentage of responses for each score for community facilities.

Results of Qualitative Data Collection

Questions about the Home

For the question “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why”, only one participant said that they were not satisfied with the house, as the rooms are too small and difficult to suit furniture. The other five said that they are satisfied, and two emphasised that this house is considerably better than the place they were living before. When asked “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why”, three of the interviewees said that they feel secure, while other three said that they feel insecure as the neighbourhood is dangerous. When answering the question “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to aesthetic? Please explain why”, five of them said that they appreciate the appearance of the house, but one resident said that they do not like the fact that the house is semi-detached, as they would prefer to have a detached house.

Questions about Community

For the question “How would you describe your level of satisfaction in relation to this neighbourhood? Please explain why”, the answers were homogeneous, as the respondents said that they are satisfied with the good location, but they dissatisfied with the lack of health centre and public leisure places. With the question “Do you believe there is any place or places in the neighbourhood that you could identify as a symbol or symbols of the community, such as a church, a park or a monument? If so, could you point them out and explain why?”, the responses were similar to the previous developments, as all residents said that there are no places that can be considered as symbols of the community. When asked the questions “Do you feel like being part of a community in this neighbourhood?”, only two people said that they like being part of a community, while the other four affirmed that they do not have this sentiment.

Questions for Those Who Made Alterations in the House

For the question “what were the main reasons that led you to make alterations in the house?”, one said he constructed boundary walls for security and privacy. The

front veranda was for garage and leisure. The side veranda built to cover the laundry. The interviewee constructed a new kitchen because they consider the existing kitchen small, and they now transformed the previous kitchen into a dining room. They built an extra room for their self and their partner, and left the existing bedrooms for their children. The other also built the front veranda for leisure and the extra room was for home business, as they used to have a local shop in the slum that was replaced by the social housing development. Although Caixa does not permit the houses to be used for commercial purposes, the interviewee affirmed that they had done this legally, and received approval from Caixa and from the local authorities. When asked "How would you describe your level of satisfaction in relation to the house today, i.e. after the alterations? Please explain why", both said that they feel highly more satisfied. One of them said that they feels significantly more secure with the boundary walls, and they both affirmed that they are greatly satisfied with the fact that they have a front veranda in their house. When answering the last question "Could you affirm that you feel like this place is your home?", both said that they feel like this house being their home as it is their own house, and for the fact that this is where they live with their family. One also added that the alterations strengthened this sentiment of home.

Questions for Those Who Did Not Make Alterations in the House

When asked "Why have you never made any alteration in the house?", one stated that the reason is because they cannot afford making any addition or alteration, while the other said that they are already satisfied with the house. The next question was "Do you plan to make alterations in the future? Please explain why", to which one said that they plans to construct an extra bedroom for their self and their partner, and leave the other bedrooms for their children. They would also like to build a front veranda for leisure, and a rear veranda for laundry. The other said that they only plan to construct boundary walls for security and privacy. For the question "could you affirm that you feel like this place is your home?" their answers were "yes", as this is their own house.

Questions for Those Who Rated the Community Facilities as Low or Very Low

When answering the question "why have you rated shopping facilities of this neighbourhood as very low?", the interviewees said it is because there are not many options of shops in the neighbourhood, so they always have to commute to other areas for shopping. For the question "Why have you rated public leisure places of

this neighbourhood as very poor?", they both stated that it is because there is not any public leisure place in the region. When asked "Why have you rated health centres of this neighbourhood as very poor?", one said that it is because there is not any health centre nearby, and the other said that the closest health centre needs improvement, as it does not meet the demand of the region. For the questions "Why have you have rated nurseries of this neighbourhood as very poor?" and "Why have you rated schools of this neighbourhood as very poor?", their answers were the same – "there is not any nursery or school in the neighbourhood". When asked "Why have you rated commuting in this neighbourhood as very poor?", they said that it was due to the fact that it is not close to the city centre. For the last question, which was "Why have you rated community events of this neighbourhood as very poor?" They responded that the reason for their dissatisfaction is related to the fact that there are not events in the community.

Results of Observation

House in the Original Format

The picture below shows semi-detached houses in Ary Abussafi De Lima and Gregorio Correa without any alteration (see Figure 5-84).

Figure 5-84 – Houses of Ary Abussafi De Lima and Gregorio Correa without alterations of the residents.

Houses with Site Additions

Although Ary Abussafi De Lima and Gregorio Correa is a new development, it is possible to see a considerable number of houses with boundary walls (see Figure

5-85). Like in other estates, front verandas are mainly used as garage (see Figure 5-86).

Figure 5-85 – Houses with boundary walls.

Figure 5-86 – Houses with front verandas.

Houses with Alterations and Extra Rooms

The majority of extra rooms were built on the backyard of the houses (see Figure 5-87). Except for those built for commerce (see Figure 5-88). As in the previous estate, it was possible to observe that there are houses with people working with home business without significant alterations in the house (see Figure 5-89).

Figure 5-87 – Houses with extra rooms in the back yard.

Figure 5-88 – Houses with extra rooms for commerce.

Figure 5-89 – Houses with home business without extra rooms.

Public Areas

There are no public leisure places in Ary Abussafi De Lima and Gregorio Correa. The areas reserved for community hub remain empty (see Figure 5-90).

Figure 5-90 – Area reserved for community hub.

Similar to the other social housing developments, it is possible to see that people in Ary Abussafi De Lima and Gregorio Correa have the habit to socialise in front of their houses, and children to play on the streets (see Figure 5-91).

Figure 5-91 – Children playing on the streets.

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5.2.6 Housing Estate 6 – Celina Jallad

Introduction and Plans

Celina Jallad is the newest social housing estate amongst those investigated. With 1,498 houses, it is also the biggest one. It is expected to have a total of 5,992 residents when completed. However, the houses have been built in different stages, and only 859 residences have been delivered so far. Based on a 95% confidence level and 10% confidence interval, the Sample Size Calculator has suggested a sample size of 86 houses. It is located in the southwest of the city, around 300m south from the housing estate 2 - Vila Fernanda, in the Restrict Densification Zone. Only two public community services could be found with a radius of 2km from the centre of Celina Jallad.

Celina Jallad has 39 blocks, with a total of 893 plots. Two blocks are reserved for the city council to build community hub. One has an area of 2.1 hectares, and the other 1.9 hectares. The standard plots have 10x20m, which allocate two houses, as all the houses are semi-detached (see Figure 5-92). The houses have an area of 40.70m^2 (see Figure 5-93).

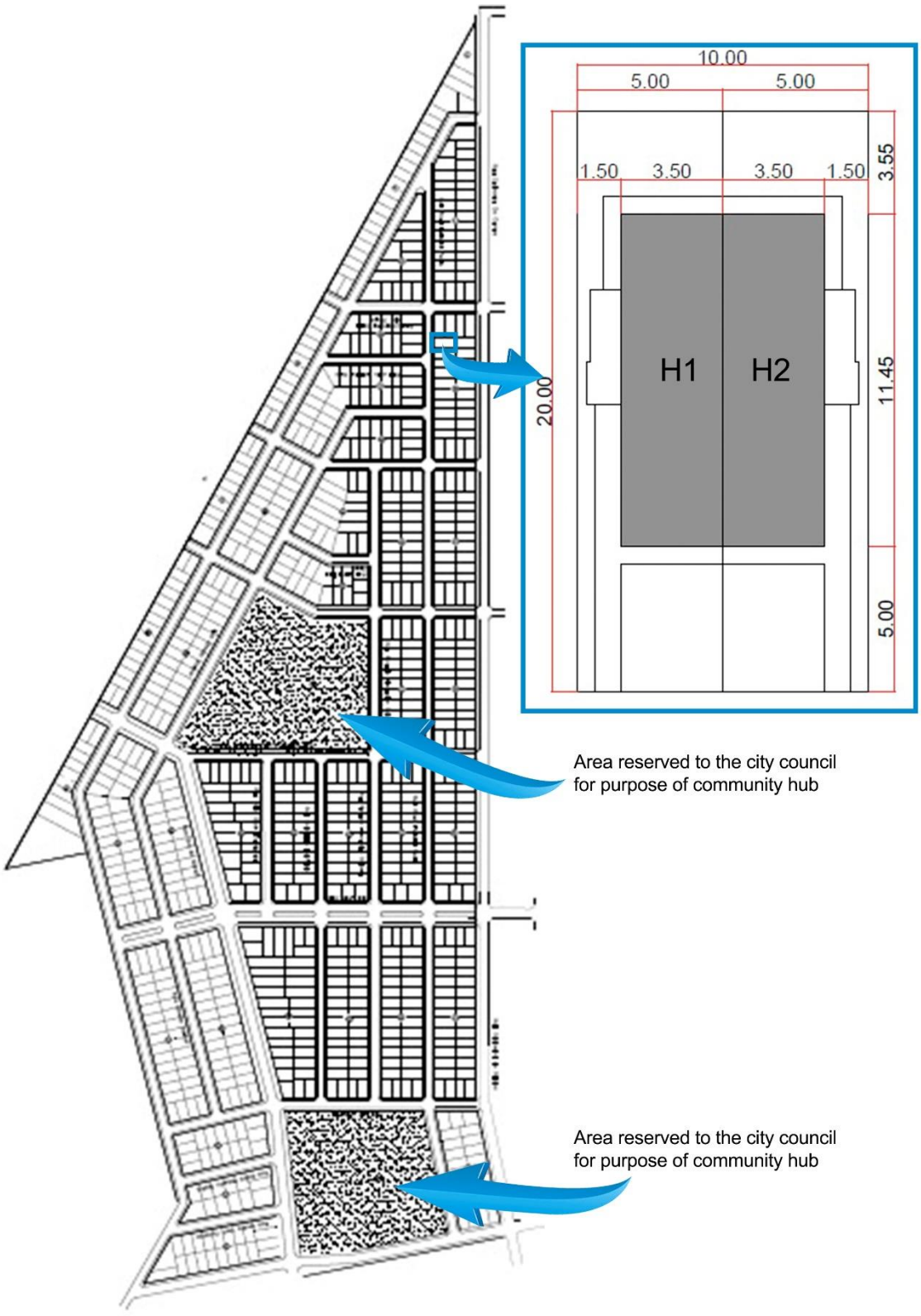


Figure 5-92 – Plan of the housing estate Celina Jallad.

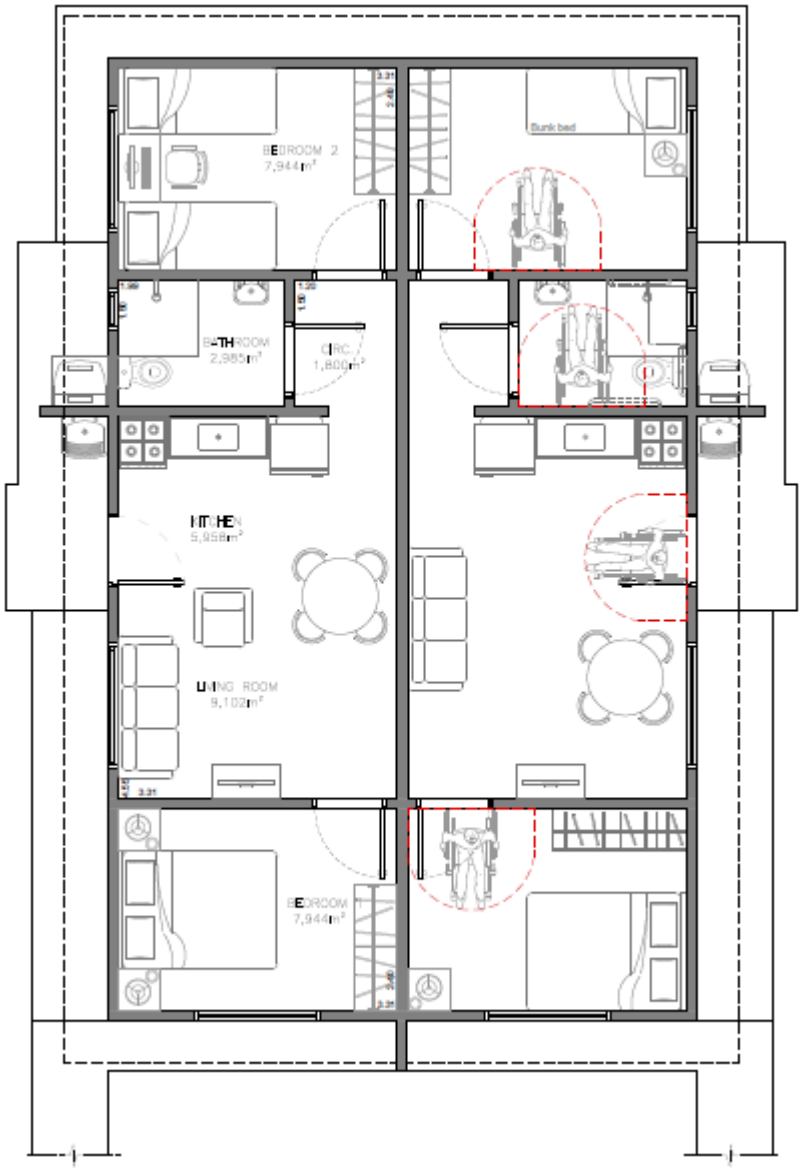


Figure 5-93 – Floor plan of a standard house of Celina Jallad.

Results of Quantitative Data Collection

Length of Residence

All of the residents have been living for less than one month.

Number of Residents

Like in all the other social housing estates investigated, Celina Jallad has also an average of two adults and two children per house. However, more than 40% of the houses have between five and nine residents (see Figure 5-94).

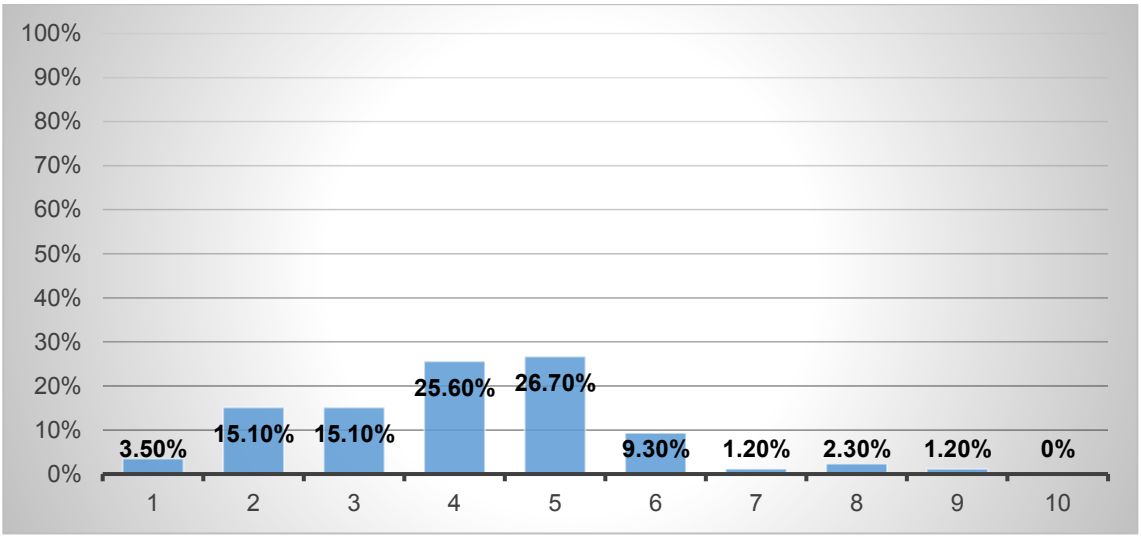


Figure 5-94 – Percentage of number of residents per house.

More than 60% of the houses have two adults. The number of children per house is concentrated mostly between one and three, which represents around 74.4% of residences.

Employment Status of Residents

The fourth question was in regards to their employment status. The participants were offered four options; in which they were not limited to only one option:

- Employed/self-employed;
- Home business;
- Not working or studying;
- Students.

Sixty-one houses, which represents 82.5% of the sample, have at least one person in employment. Eight houses, which is around 10% of the sample, have at least one person who works at home. Approximately 45% of the houses have only one person who works. Forty-five houses, which accounts for 47.7% of the sample, have at least one person who does not work nor study. Sixty houses, which represents 69.8% of the sample, have at least one student.

Alterations and Extensions

Boundary walls were the only site addition found in more than 10% of the houses (see Table 5-19). The number of houses that built extra rooms was very low (see Table 5-20). None of the houses altered existing rooms.

Table 5-19 – Summary of Site Additions.

Site Additions	Number of houses	Percentage
Boundary walls	**15**	**17**
Side veranda	2	2
Front veranda	1	1
Front veranda and rear veranda	1	1
Boundary walls and rear veranda	1	1
Boundary walls, front and rear verandas	1	1
Front, rear and side verandas	1	1

	Boundary walls	Side veranda	Front veranda	Rear veranda
Number of houses	18	4	4	4
Percentage	30	5	5	5

Table 5-20 – Summary of Additional Rooms.

Additional rooms	Number of houses	%
Bedroom and bathroom	1	1
Bedroom, bathroom and kitchen	1	1

	Bed 1	Bed 2	Living	Bath	Kitchen	Storage	Home business
Houses	2	0	0	2	1	0	0
Percentage	2	0	0	2	1	0	0

Commuting to Work

Only four participants, which represents around 4% of participants in employment, affirmed that they work in the neighbourhood, which is not a relevant number. The length of time that residents spend to community to work ranges from less than fifteen minutes to three hours. The groups of the highest number of commuters is that in which the residents take between ninety-one minutes to two hours (20%), sixteen to thirty minutes (18%), and sixty-one to ninety minutes (18%) to go to work (see Figure 5-95). More than a half of the residents commute to work using public transport (see Figure 5-96).

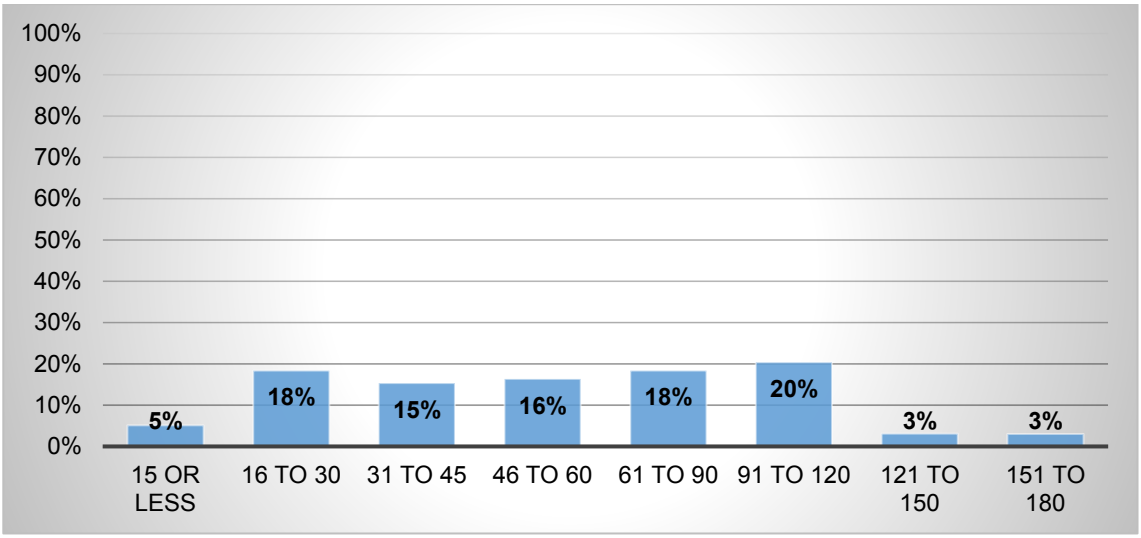


Figure 5-95 – Percentage of number of residents for each length of time to commute to work in minutes.

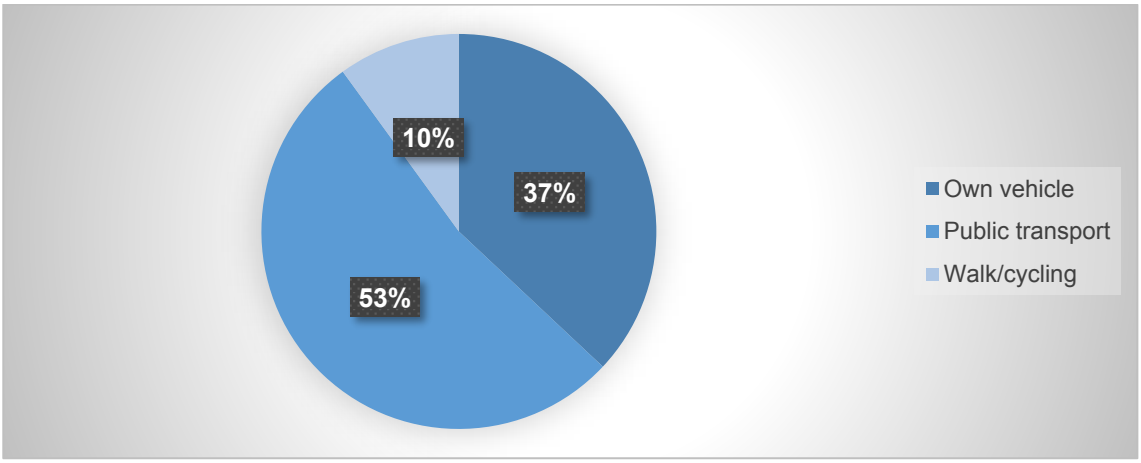


Figure 5-96 - Percentage of use of each form of transport to commute to the place where the residents work.

Commuting to Study

Fifteen houses, which accounts for 17.4% of the sample, have at least one resident who studies in the neighbourhood. The length of time that people take to commute to study varies from less than fifteen minutes to two hours and a half (see Figure 5-97). Around a half of the students use public transport to commute (see Figure 5-98).

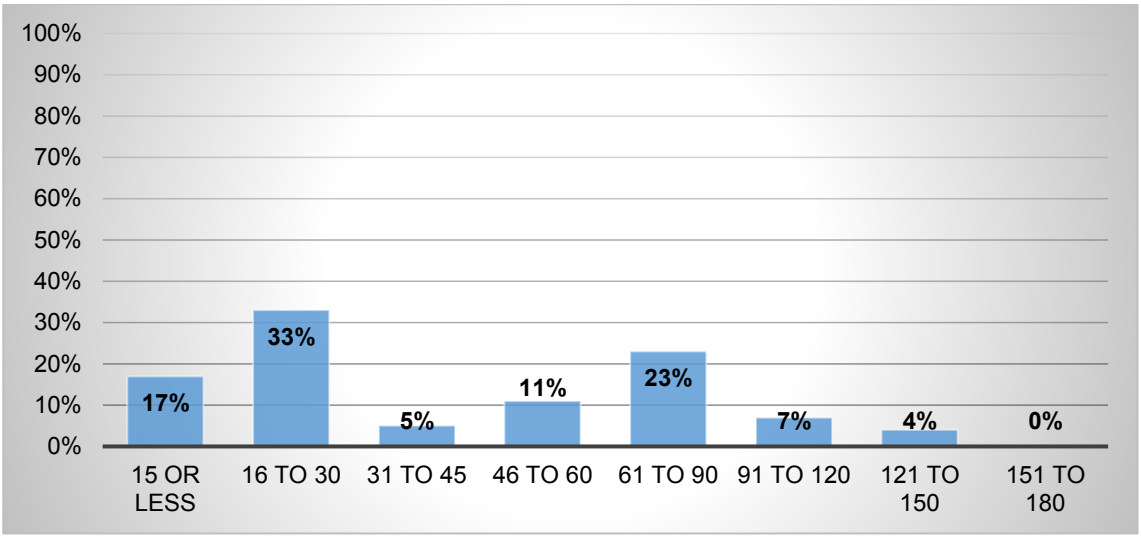


Figure 5-97 – Percentage of number of residents for each length of time to commute to the place where they study in minutes.

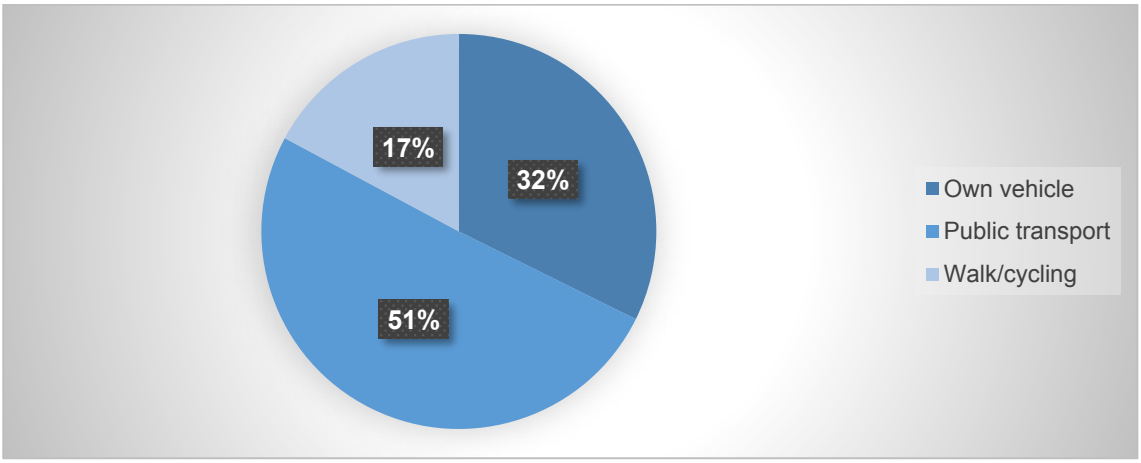


Figure 5-98 – Percentage of use of each form of transport to commute to the place where the residents study.

Community Facilities

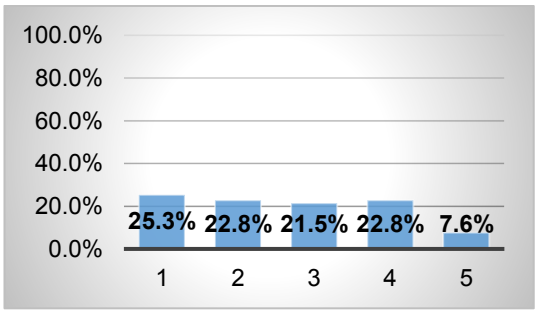
The majority of community facilities have received an average of low scores from the participants (see Table 5-21).

Table 5-21 – Scores given by the residents to community facilities.

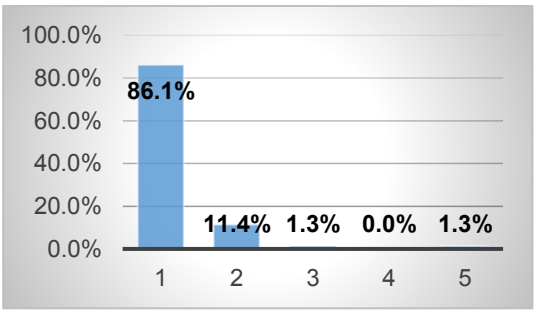
	Shop.	Leisure	Health	Nursery	School	Commuting	Community
Mean	3	2	2	2	2	3	3
Mode	1	1	1	1	1	3	1

There was a balance of responses for shopping facilities, as the number of people who chose each score was very similar . The vast majority of participants consider the public leisure places in the neighbourhood as very poor. Health centres, nurseries, and schools in the neighbourhood have also received low scores, as more than a half of the residents view these items as very poor. The scores for commuting were also balanced, with a slightly higher percentage of people who

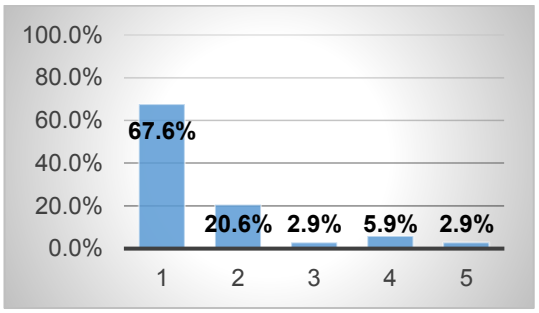
consider this item as average and good. More than a half of residents see community events in the neighbourhood as poor or very poor (see Figure 5-99).



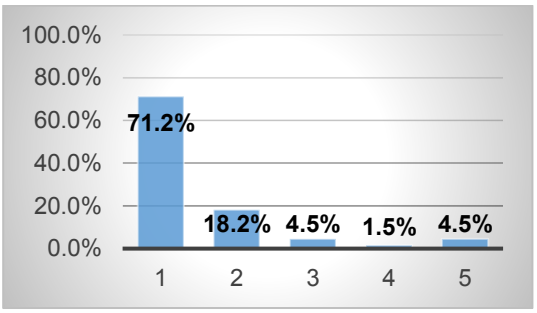
Shopping Facilities



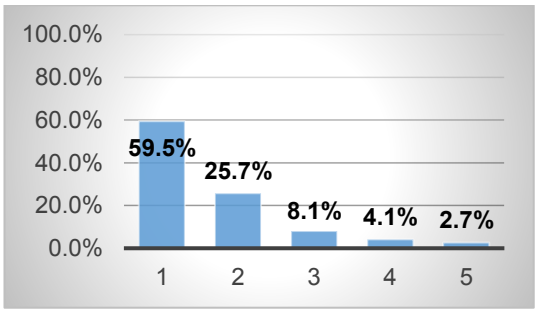
Public Leisure Places



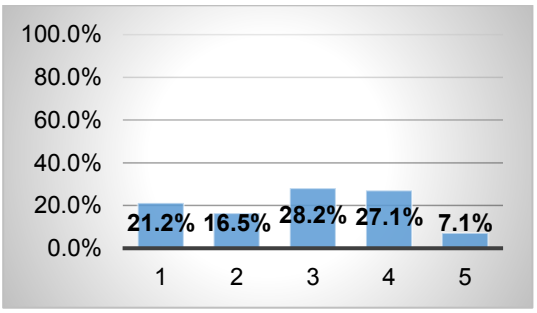
Health Centres



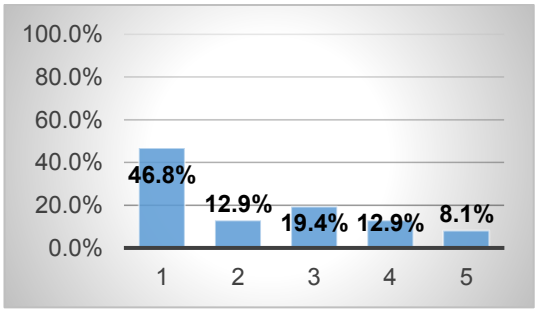
Nurseries



Schools



Commuting



Community Events

Figure 5-99 – Percentage of responses for each score for community facilities.

Results of Qualitative Data Collection

Questions about the Home

When asked “How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation

to your daily basic needs? Please explain why", three said that they were satisfied, but the other three affirmed that the layout of the house does not satisfy them. They mentioned small bedrooms, and living room integrated to the kitchen as their main reasons for dissatisfaction. One also mentioned the lack of space in the plot to build extra rooms. For the question "How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why", only two participants affirmed that they felt secure, while the other four stated they feel insecure mainly due to the lack of boundary walls, dangerous neighbourhood, and weakness of doors and windows. When answering the question "How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to aesthetic? Please explain why", only two interviewees said that they were satisfied, as the others complained about the house being semi-detached and having little space in the plots. They affirmed that it gives them less flexibility for additions and alterations in the house.

Questions about Community

When asked "How would you describe your level of satisfaction in relation to this neighbourhood? Please explain why", only one participant said that they were satisfied, while the other five interviewees complained about the bad location and the lack of community facilities. One also added the high prices of products sold in the local shops near the development. For the question "Do you believe there is any place or places in the neighbourhood that you could identify as a symbol or symbols of the community, such as a church, a park or a monument? If so, could you point them out and explain why?", the answers were homogenous – there is no symbols of community in the neighbourhood. When answering the question "Do you feel like being part of a community in this neighbourhood?", two interviewees responded yes, but the other four said that they believe it is still too recent to develop this sentiment, as the estate is new.

Questions for Those Who Made Alterations in the House

For the question "what were the main reasons that led you to make alterations in the house?", one said they constructed boundary walls mainly for privacy, but also for security. The other said that they built a front veranda for garage, and a rear veranda for leisure. When asked "How would you describe your level of satisfaction in relation to the house today, i.e. after the alterations? Please explain why", one

said that they are still dissatisfied, as their main concerns are related to the small size of the bedrooms and the integration between the kitchen and the living room, which they believe to be difficult to modify. The other said that they feel more satisfied with the boundary walls, as the house feels more private. When answering the last question “Could you affirm that you feel like this place is your home?”, one said that they do not have this sentiment, and is not satisfied with the house. The other said “yes” for that question, explaining that the fact that it is their own property, and being the place where they live with their family gives this sentiment of home.

Questions for Those Who Did Not Make Alterations in the House

When answering the question “Why have you never made any alteration in the house?” one stated that they are already satisfied with the house, but the other said that the reason is the fact that they have had no time yet, as they moved in very recently. For the question “Do you plan to make alterations in the future? Please explain why”, one said that they plan only to construct boundary walls for privacy and security. The other said that they only plan to build an extra bedroom to the back of the house, as the rooms are too small. The interviewee said that an extra bedroom is all they can build due to the small area of the plot. For the last question, which was “Could you affirm that you feel like this place is your home?”, one said “yes”, as they own the house, and it has a significant impact on their feeling of home. The other said that they feel partially as a home, as they is not satisfied with the fact that the house is semi-detached.

Questions for Those Who Rated the Community Facilities as Low or Very Low

For the questions “Why have you rated shopping facilities of this neighbourhood as very low?”, “Why have you rated public leisure places of this neighbourhood as very poor?”, “Why have you rated health centres of this neighbourhood as very poor?”, “Why have you have rated nurseries of this neighbourhood as very poor?” and “Why have you rated schools of this neighbourhood as very poor?”, there responses of both interviewees were the same – “there is not any of these facilities in the neighbourhood”. When asked “Why have you rated commuting in this neighbourhood as very poor?”, they said that it was due to the bad location, and because there is not any bus stop within the housing estate. For the last question, which was “Why have you rated community events of this neighbourhood as very poor?” They both answered saying that there is not any event in the community yet.

Results of Observation

House in the Original Format

The picture below shows houses in Celina Jallad without any alteration (see Figure 5-100).

Figure 5-100 – Houses of Celina Jallad without alterations of the residents.

Houses with Site Additions

Boundary walls to divide the houses was the most common site addition to the houses (see Figure 5-101).

Figure 5-101 – Houses with boundary walls.

Houses with Alterations and Extra Rooms

Only a few houses with extra rooms could be identified (see Figure 5-102).

Figure 5-102 – Houses with extra rooms on the backyard.

Public Areas

There are no public leisure places in Celina Jallad. The areas reserved for community hub remain empty (see Figure 5-103).

Figure 5-103 – Area reserved for community hub.

As in the other social housing estates, it is notable that residents in Celina Jallad have the habit of socialising in front of their houses, and children to play on the streets (see Figure 5-104).

Figure 5-104 – Children playing on the streets.

5.3 Data Analysis

This analysis discusses the differences and similarities between the estates, and the variables that have possibly caused any impacts in the results. To facilitate the comprehension of the analysis, tables and diagrams are used. In this section, the results of the questionnaires and responses of the interviewees are linked and discussed together, in an attempt to identify the variables of influence of the phenomena discovered through the quantitative data collection. The analysis will be presented in two sections, the first discussing information related to the community, and the second approaching the characteristics of home. The analysis presented in this section will, initially, be based solely on the information extracted from the data collection. The outcome of this analysis will be further used and analysed alongside the theoretical framework, as well as the results from the interviews with the local authority. This analysis of the data collection combined with the theoretical framework will be further discussed in section 5.7.

5.3.1 Community

Commuting to Work

Although the six housing estates are located in distinct regions of the city, with different distances from the city centre, the length of time for commuting to work of the respondents in the housing estates present strong similarities. All of the housing estates have as a pattern the highest concentration of commuters to work in the group that takes between sixteen to thirty minutes, and between thirty-one to sixty minutes. In Celina Jallad, the percentage is similarly distributed over the groups, which can be related to the longest distance from the city centre amongst the six estates. The four oldest estates have the second highest commuter travel times of forty-six to sixty minutes. The only exceptions are Ary Abussafi De Lima and Gregorio Correa. Although this estate is the closest to city centre, its second highest group of time for commuting to work is between ninety-one minutes and two hours (see Figure 5-105).

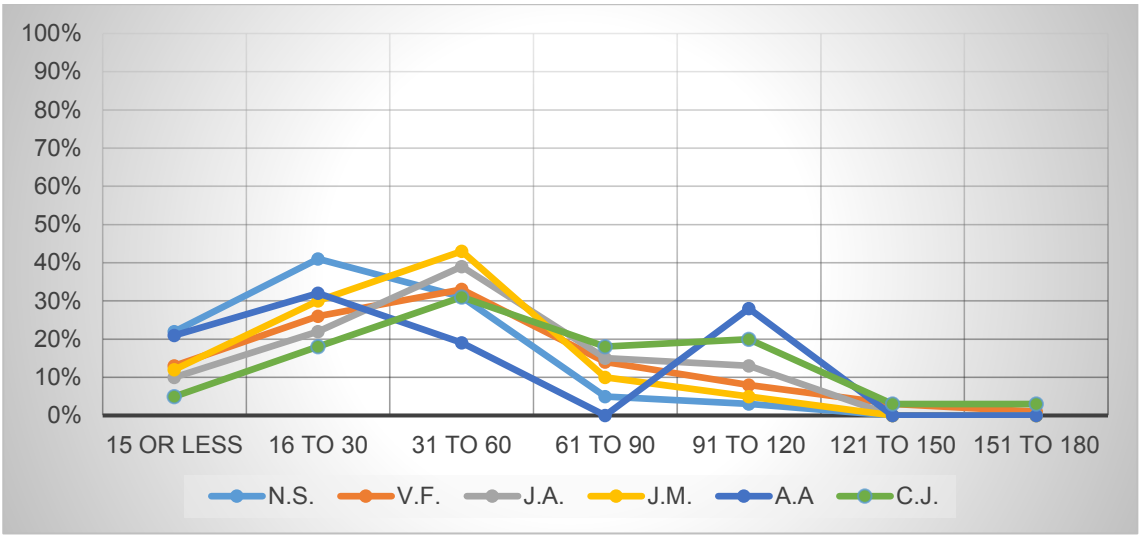


Figure 5-105 – Comparison of percentage of respondents for each length of time to commute to work in minutes between the housing estates.

When analysing the means of transport used by the participants to work in each estate, it is possible to perceive great similarities between the three oldest developments. In these three estates, i.e. Nova Serranda, Vila Feranda, and Joao Alberto Amorim, between 46% and 48% of respondents commute to work by their own vehicle, 40% to 45% use public transport, and between 8% and 14% go to work walking or cycling. Only between 6% and 8% of participants in these three developments work in the neighbourhood. The fourth estate, Jose Maksoud, has 15% of respondents working in the neighbourhood, which is the highest amongst the estates analysed. Jose Maksoud is also the only development where walking and/or cycling is the most common form of commuting to work. With 55%, Ary Abussafi De Lima and Gregorio Correa has also the highest percentage of its participants commuting to work using their own vehicle, followed by public transport, and on foot/bike. Celina Jallad is the only estate that has the majority of its respondents going to work by public transport (see Figure 5-106). The contrast between the two newest estates can be related to their locations. There is a fixed price per journey for public transport, regardless of distance. Therefore, it may be the reason why the majority of participants in the furthest development from the city centre, which is Celina Jallad, go to work by bus; while most of the respondents of Ary Abussafi De Lima and Gregorio Correa, which is the closest to city centre, drive to work.

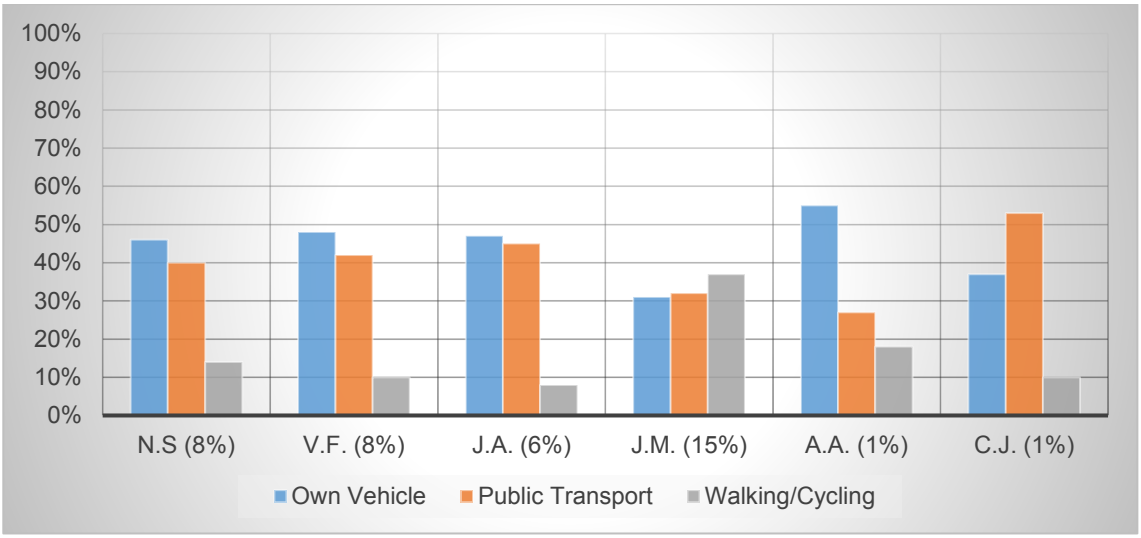


Figure 5-106 - Comparison of percentage of participants who use each mean of transport to go to work in all the housing estates, showing in brackets the percentage of people who work in the neighbourhood.

Commuting to Study

The group of sixteen to thirty minutes has the highest percentage of residence represented with regards to commuting time to the place where they study (see Figure 5-107). The exception is Jose Maksoud, which has the highest percentage of people who study in the neighbourhood. While the other five estates have up to 17% of people who study in the neighbourhood, 41% of the students in Jose Maksoud study in the neighbourhood.

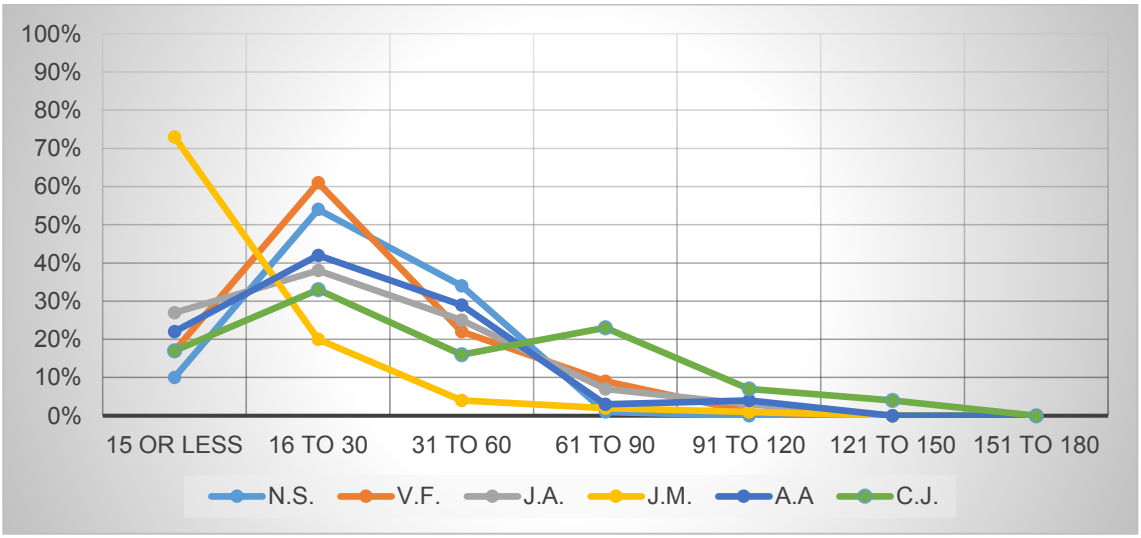


Figure 5-107 – Comparison of percentage of participants for each length of time to commute to the place where they study in minutes between the housing estates.

When analysing the means of transport used by the students to commute, Jose Maksoud is again an exception, as 70% of its students commute on foot or by bike. Therefore, although only 41% of Jose Maksoud students study in the neighbourhood, it is possible to view that the vast majority of them are able either to

walk or cycle to their place of study, and 73% of them spend fifteen minutes or less commuting. In all the other five estates, between 10% and 30% commute on foot or by bike. In four estates, the vast majority use public transport to go to the place where they study (see Figure 5-108).

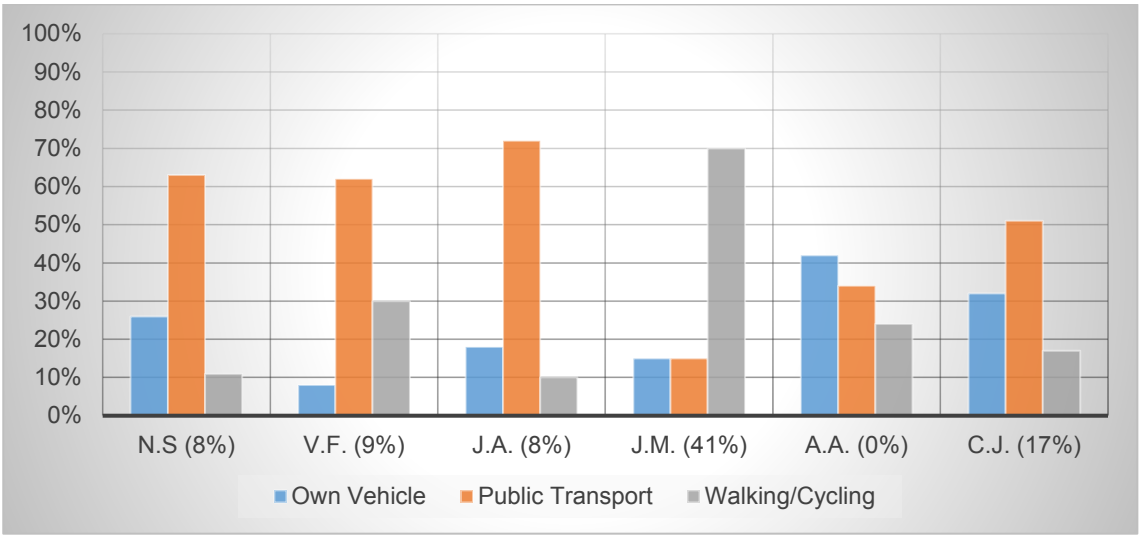
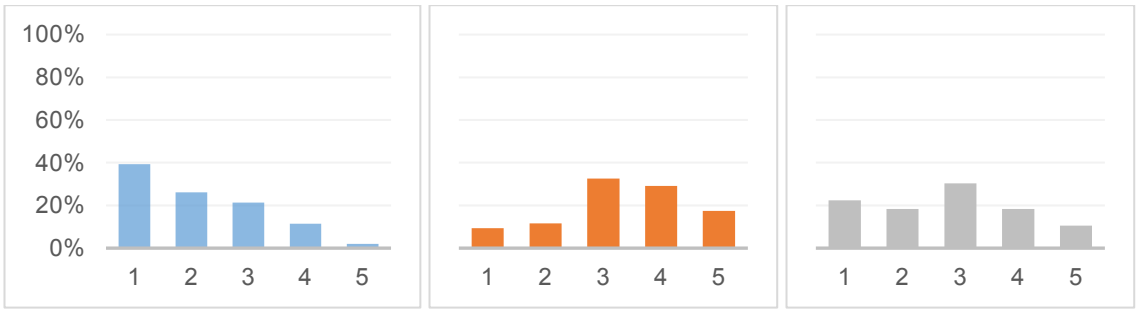


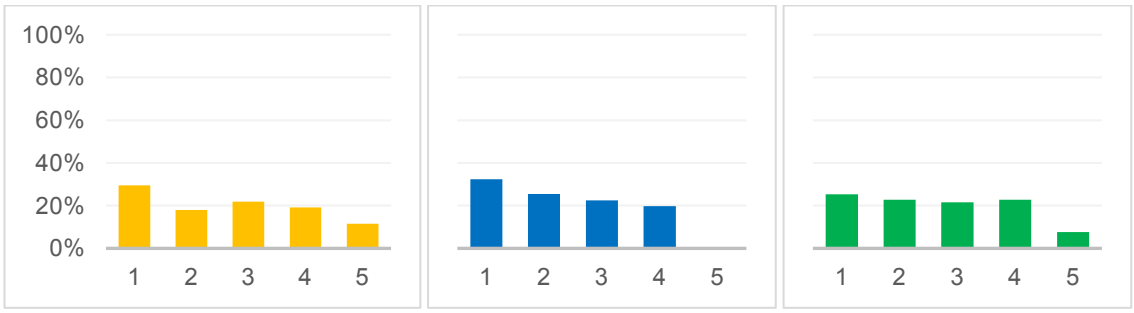
Figure 5-108 – Comparison of percentage of participants who use each mean of transport to go to the place where they study in all the housing estates, showing in brackets the percentage of people who study in the neighbourhood.

Shopping Facilities

Nova Serrana, the oldest housing estate, has the highest percentage of people who consider shopping facilities in the neighbourhood as very poor. From the observations, Nova Serrana appears to have the smallest number of local shops in the area amongst the estates investigated. With a total of 46.5%, Vila Fernanda, on another hand, has the highest percentage of respondents who view shopping facilities in the neighbourhood as good or very good. It is also the only housing development with two medium-sized supermarkets within the estate. The other four estates have a balanced distribution of percentage amongst the views of the participants in relation to the shopping facilities in their neighbourhoods (see Figure 5-109). Through the interviews and the observation, it was possible to conclude that not only the distance from the medium and large sized supermarkets is an issue for the respondents, but also the higher price of the products sold by the local shops in the area. Therefore, it justifies the balanced responses for this item, as they have access to shopping facilities in the neighbourhood, but it can be more expensive and with fewer options of products, if compared with central areas.



Nova Serrana | Vila Fernanda | Joao Alberto Amorim



Jose Maksoud | A. Abussafi and G. Correia | Celina Jallad

Figure 5-109 – Percentage of responses for each score for shopping facilities in the neighbourhood in the six housing estates, being 1 very poor and 5 very good.

Public Leisure Places

In five of the six estates, the questionnaire respondents were least satisfied with the provision of public leisure places of all the community facilities. The percentage of people who view this facility as very poor in these five estates varies from 86.1% to 98.5%. Although all the six developments have an area reserved for a community hub, none of them have received any development in these areas. Thus, none of the housing estates have a public leisure place. However, Jose Maksoud is located near a sport centre, which includes cultural activities. Consequently, Jose Maksoud is also the only development that stands out in terms of views of the respondents in relation to the public leisure places in the area, as more than half of the respondents see this provision as good or very good (see Figure 5-110).

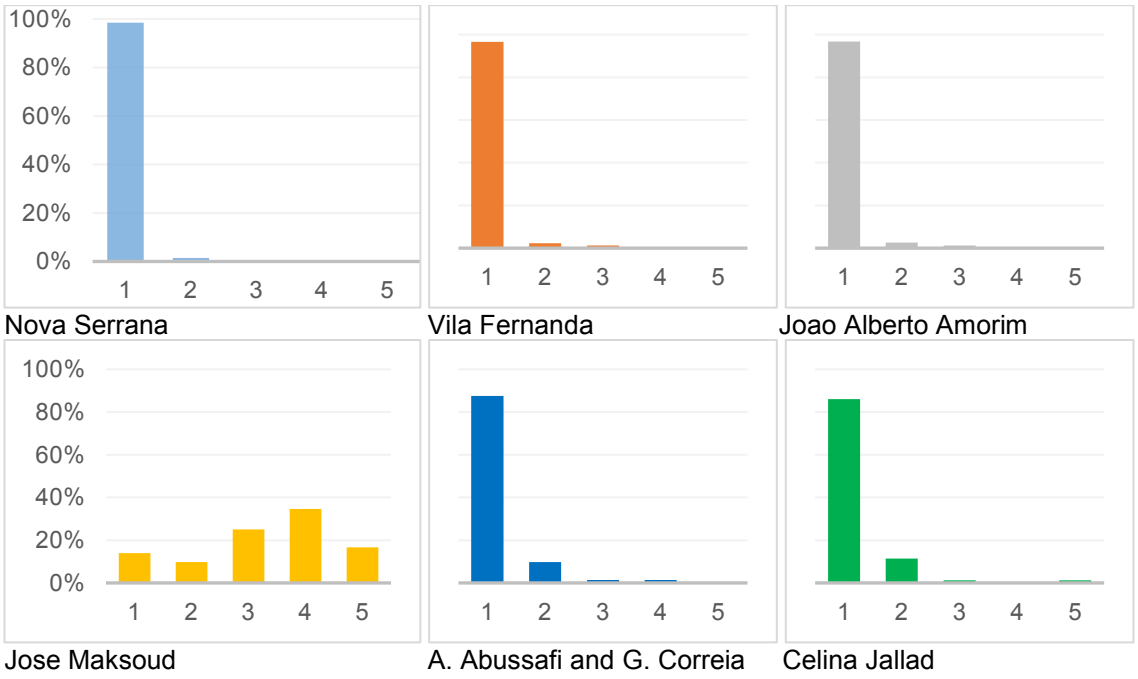


Figure 5-110 – Percentage of responses for each score for public leisure places in the neighbourhood in the six housing estates, being 1 very poor and 5 very good.

Health Centres

Satisfaction with Health Centre provision received low scores, as between 67.6% and 78.9% of participants of four estates consider this item as very poor. The exceptions are a Vila Fernanda and Jose Maksoud (see Figure 5-111), but there was not any clear evidence pointing to the possible reason for this distinction. Vila Fernanda is served by the same health centres that also serves Joao Alberto Amorim and Celina Jallad.

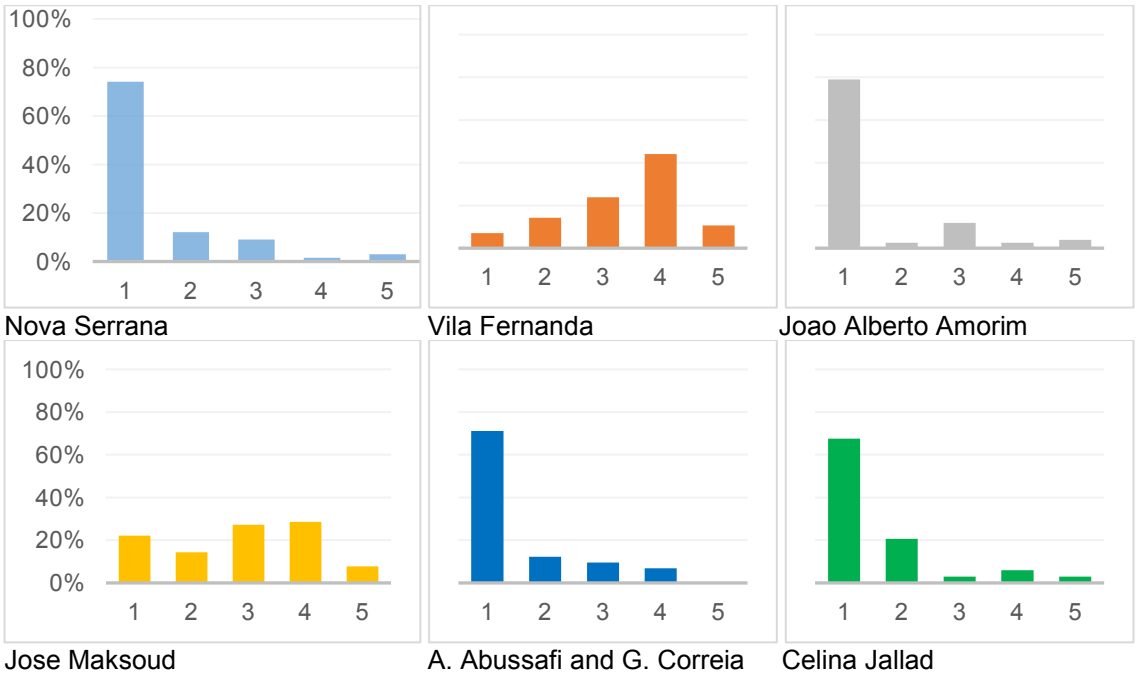


Figure 5-111 – Percentage of responses for each score for health centres in the neighbourhood in the six housing estates, being 1 very poor and 5 very good.

Nurseries

When analysing the views of the respondents in relation to the nurseries in the neighbourhoods, the picture is similar to that of health centres, as the same four estates have between 71.2% and 79.2% of people who see this item as very poor (see Figure 5-112).

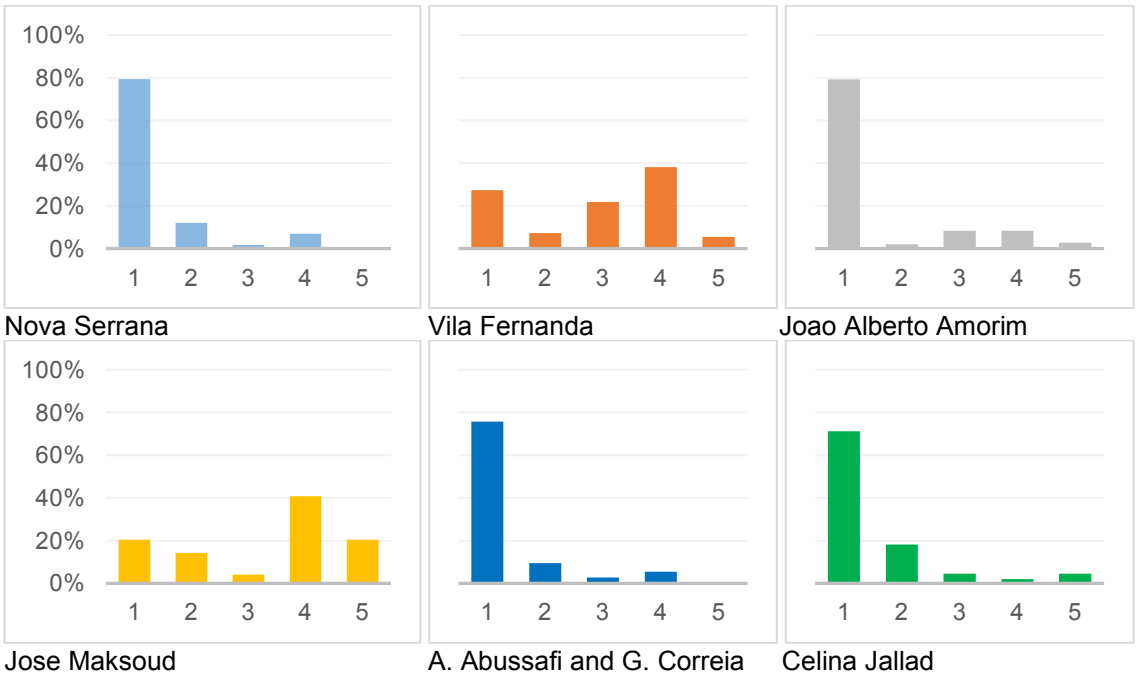


Figure 5-112 - Percentage of responses for each score for nurseries in the neighbourhood in the six housing estates, being 1 very poor and 5 very good.

Schools

More than a half of people in five of the housing estates view schools in the neighbourhood as very poor. The only exception is Jose Maksoud, as almost 80% of respondents in this estate see this item as good or very good (see Figure 5-113). Nevertheless, it is clear to perceive the reason for this distinction, as Jose Maksoud has the highest number of students who study in the neighbourhood. Therefore, it is possible to note that the level of satisfaction of people in relation to schools in the neighbourhood is closely related to their accessibility to this service, as the only estate to have with high scores is also the estate with the highest percentage of people who study in the neighbourhood.

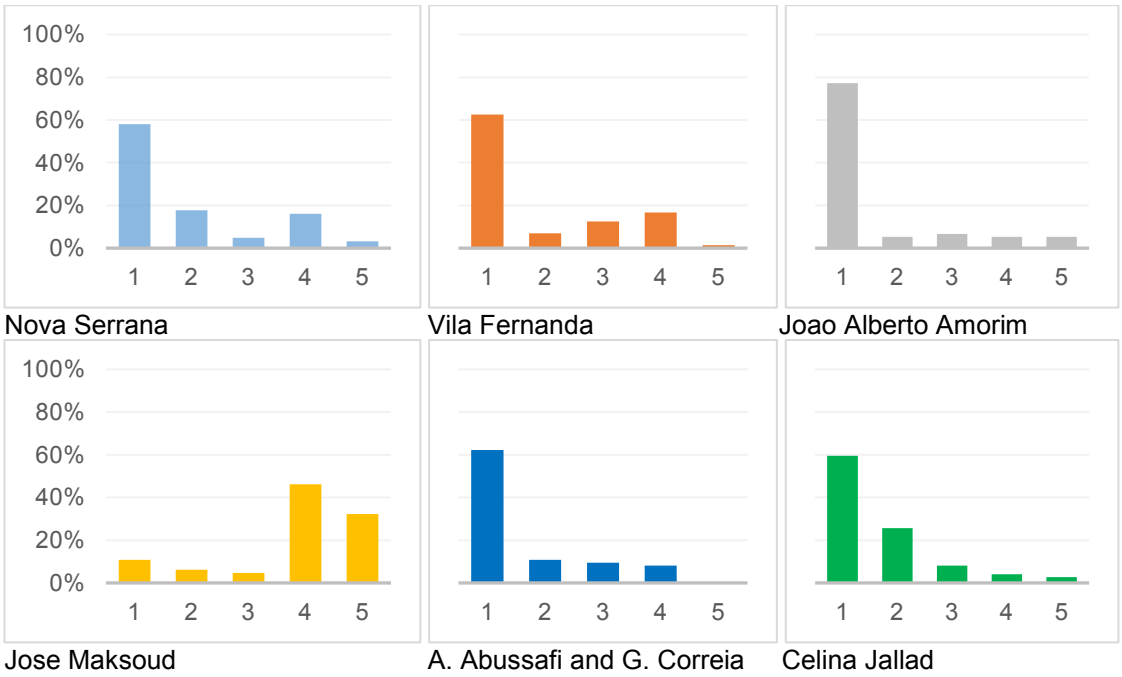


Figure 5-113 – Percentage of responses for each score for schools in the neighbourhood in the six housing estates.

Commuting

Facilities for commuting is seen as good or very good by the respondents of four housing estates. Between 47% and 70% of participants in five housing estates consider this item to be good or very good; in Celina Jallad, only 34% of respondents' view facilities of commuting as good or very good. Nevertheless, around 28% of participants in this estate consider commuting as medium. Thus, only 37% of respondents in this community see this item as poor or very poor (see Figure 5-114). Therefore, commuting is not considered a major issue for the communities in any of the housing estates investigated.

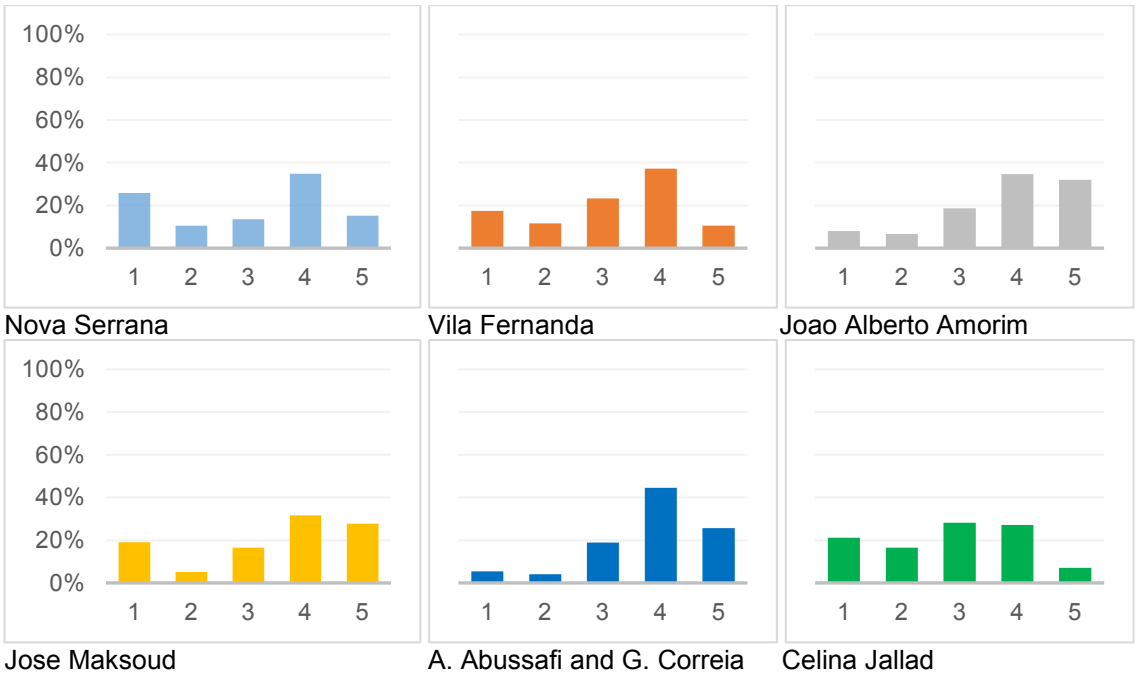


Figure 5-114 – Percentage of responses for each score for commuting in the neighbourhood in the six housing estates, being 1 very poor and 5 very good.

Community Events

Community events are perceived as poor or very poor by the majority of respondents of five of the housing estates (see Figure 5-115). The exception is Joao Alberto Amorim, which alongside Vila Fernanda, has the highest number of interviewees who affirmed that they have a sentiment of community in the neighbourhood. As there are no physical places for community events, the satisfaction of the respondents of Joao Alberto Amorim might be related to events developed by the respondents for their community.

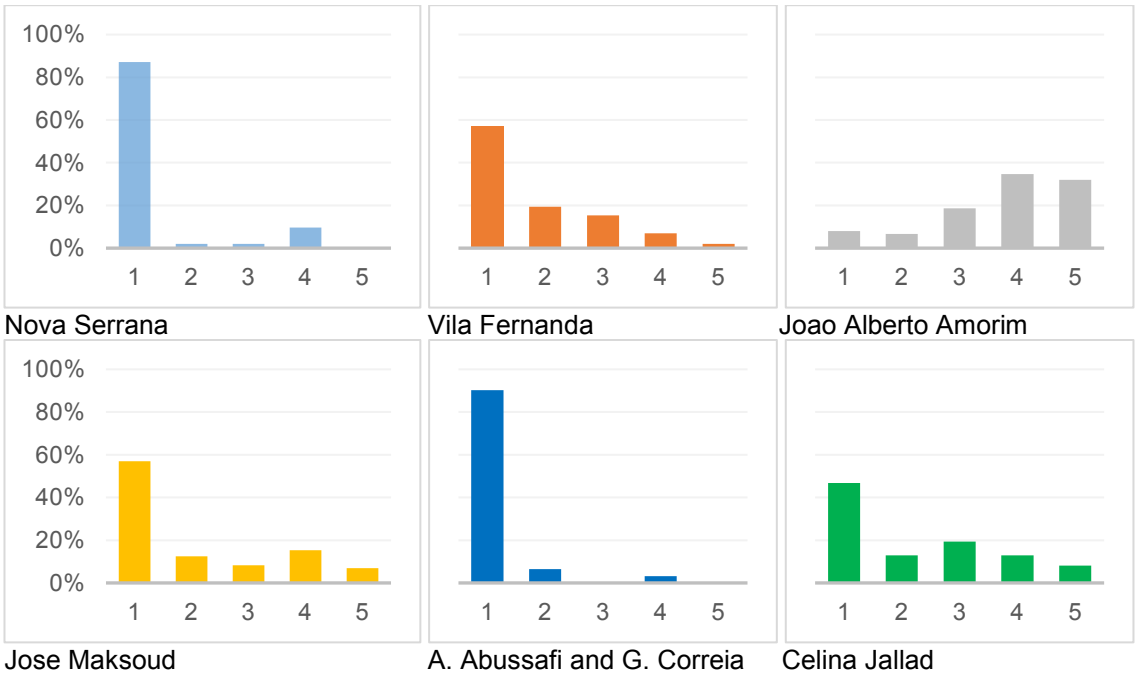


Figure 5-115 – Percentage of responses for each score for community events in the neighbourhood in the six housing estates, being 1 very poor and 5 very good.

5.3.2 Home

Plans and Technical Standards

The technical standards of Caixa is notably one of the main contributors for the architectural design of the houses. The first four developments have houses with a useable area of between 32.02 m^2 and 34.02m^2, as the minimum required by Caixa for the projects approved in that period was 32m^2. On another hand, the two newest developments, i.e. Ary Abussafi De Lima and Gregorio Correa, and Celina Jallad, have houses with a useable area superior to 36m^2, which has been the minimum demanded for projects approved since 2013 (see Table 5-22).

Table 5-22 – Year of project approval, built area, and useable area of the standard houses of each housing estate.

	Nova Serrana	Vila Fernanda	Joao Alberto	Jose Maksoud	Ary Abussafi	Celina Jallad
Year of Approval	2010	2011	2012	2012	2013	2014
Built Area (m^2)	36.76	36.14	38.74	35.84	42.80	40.70
Useable Area (m^2)	32.14	32.02	34.02	32.02	37.11	36.25

When analysing the bedrooms of the standard houses of all the estates, it is possible to perceive an attempt at designing houses with measures as close to the minimum requirements as possible. The double bedroom of the standard houses of five of the

housing estates has a width of 2.40m, which is the minimum to suit the 1.40x1.90m bed, and the two 0.50x0.50m bed-stands on the sides. Moreover, this width locates the 1.50x0.50m wardrobe on the other side of the bedroom (see Figure 5-116). The second bedroom of the standard houses of five of the housing estates also has a width of 2.40m, as it is the smallest width capable to suit two single beds with a width of 0.80m, and a space between them of 0.80m (see Figure 5-117). Nova Serrana is the only exception for both cases, as the width of its bedrooms is 2.46m, i.e. only 0.06m wider than the other five housing estates. Although the other rooms have a greater variety of typologies, it is possible to note that their areas are also designed based on the minimum requirements by Caixa.

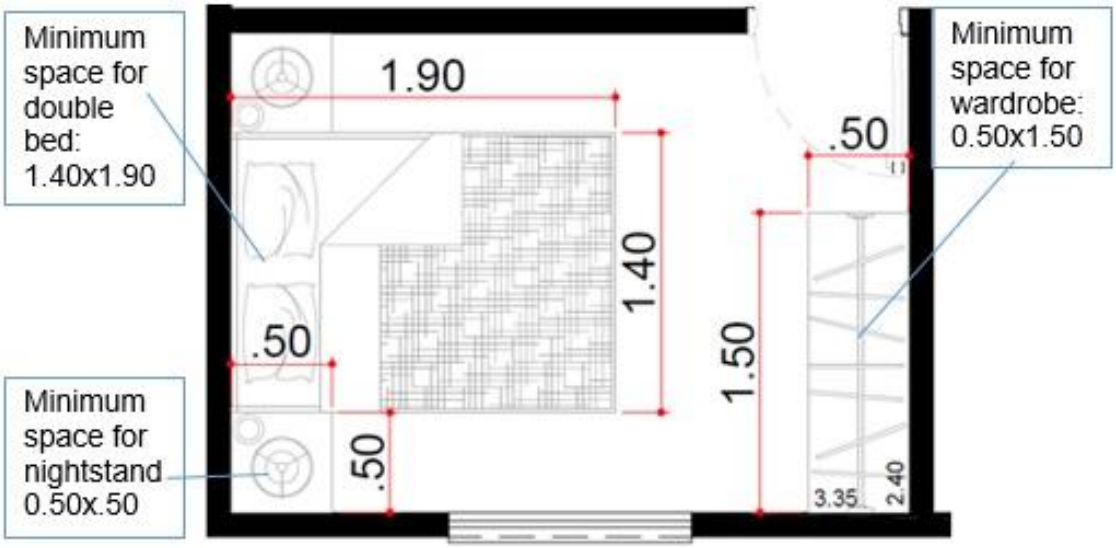


Figure 5-116 – Analysis of the floor plan of the bedroom 1 in relation to the Caixa requirements.

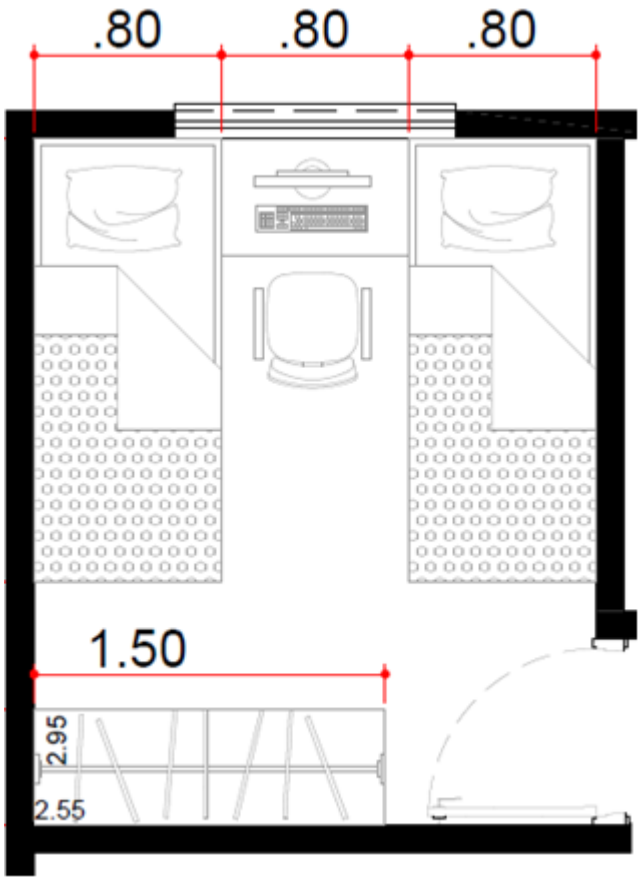


Figure 5-117 – Analysis of the floor plan of bedroom 2 in relation to the Caixa requirements.

Site Additions and Extra Rooms

When analysing the site additions and the extra rooms, it demonstrates that the construction of boundary walls is the most common addition developed by the residents in all six housing estates (see Table 5-23). Bedrooms and kitchens are the only extra rooms that have achieved more than 10% of houses in some developments. Thus, they are the only rooms to be analysed in this section. None of the existing rooms in any of the estates has reached a significant number of alterations. Therefore, they are not mentioned in this analysis.

Table 5-23 – Housing estates with architectural typology, location of the laundry in the house, site additions, and extra rooms.

	Nova Serrana	Vila Fernanda	Joao Alberto	Jose Maksoud	Ary Abussafi	Celina Jallad
Year Completed	2011	2012	2013	2014	2014	2015
Typology	Detached	Detached	Detached	Detached	Semi-detached	Semi-detached
Laundry	Side	Side	Side	Back	Back	Side
Boundary Walls	71	57	75	33	33	30
Front Veranda	23	20	14	31	10	5
Side Veranda	30	37	32	8	5	5
Rear Veranda	3	2	4	26	16	5
New Bedrooms	3	12	14	9	3	2
New Kitchens	10	8	3	10	3	1

Boundary Walls

It is possible to see a relation between the percentage of boundary walls and the length of existence of the developments. There is a gradual increase in the construction of boundary walls over the years. Through the interviews, it is possible to have a better understanding of this phenomenon, as seven in twelve interviewees stated they have not built boundary walls because they cannot afford it, or they have not had time to construct them yet. However, all seven interviewees have affirmed they do have the intention to build boundary walls around their houses in the future. Therefore, it indicates that the percentage of houses with boundary walls in the most recently built developments is likely to increase over the years. The interviewees also presented their main reasons for the construction of boundary walls, being a sentiment of insecurity one of them. Twenty-four of thirty-six interviewees affirmed that they do not feel secure in their houses, and twelve of thirty-six have pointed to lack of boundary walls as one of the reasons for their feeling of insecurity in the house. Privacy was also commonly mentioned by the interviewees as a justification for their desire of constructing boundary walls. Six of the interviewees who plan to build boundary walls said that the reason for their intention is related to privacy.

Although five of the six housing estates present this relation between length of existence and percentage of boundary walls, it is possible to see that one of them, Joao Alberto Amorim, built in 2013, does not fit this pattern (see Figure 5-118). Five

of six interviewees of this housing estate affirmed that they feel insecure in the neighbourhood. That is the highest number of insecure interviewees, alongside Vila Fernanda. Add the high number of interviewees who said to feel insecure in the neighbourhood to the fact that a third of total interviewees mentioned lack of boundary walls as one of their reasons for sentiment of insecurity in the area, it is possible to state that the high level of boundary walls in Joao Alberto Amorim is related to the high level of insecurity.

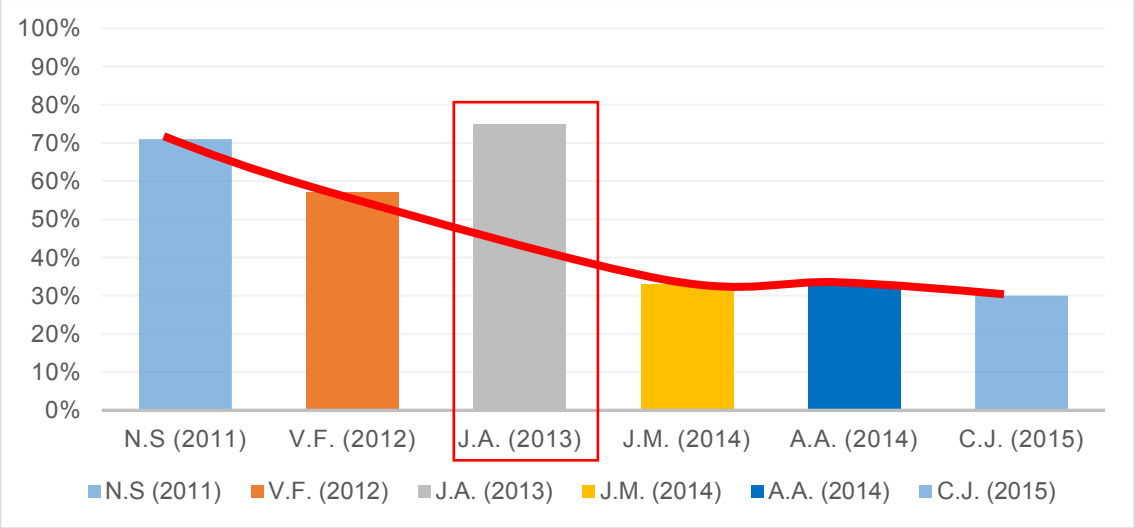


Figure 5-118 – The relation between the percentage of boundary walls in the house and the length of existence of the developments, highlighting the anomaly.

Front Verandas

In five of the six housing estates at least 10% of houses have front verandas. The only exception is Celina Jallad, in which all participants have been living for no longer than one month. Through the observation, it was possible to note the front verandas are used mainly for a leisure and socialising space, and as a garage. Like boundary walls, there is a relation between the percentage of front verandas and the length of existence of the housing estates. The percentage of front verandas in the houses has increased gradually over the years (see Figure 5-119). Nevertheless, there is also an anomaly in the pattern of front verandas in the estates, which is Jose Maksoud. Besides having the front door facing the street, this housing estate has the longest front setback. While four other estates have a front setback of 5 metres, Jose Maksoud's front setback measures 6 metres (see Figure 5-120). With 5.5 metres, Ary Abussafi De Lima and Gregorio Correa has also a longer front setback than the other four. Nevertheless, as a semi-detached house, it has less space than Jose Maksoud. Although the front door facing the street can contribute for the construction of front veranda, it cannot be pointed as the main

reason for the higher number of front verandas in Jose Maksoud in comparison with the other estates, as houses in other estates also have the front door facing the street. However, the longer setback of the houses in this estate can be considered the most likely variable of influence for the higher percentage of front verandas, as it gives the residents more space for the construction of front verandas, and for being the major external difference from the other estates.

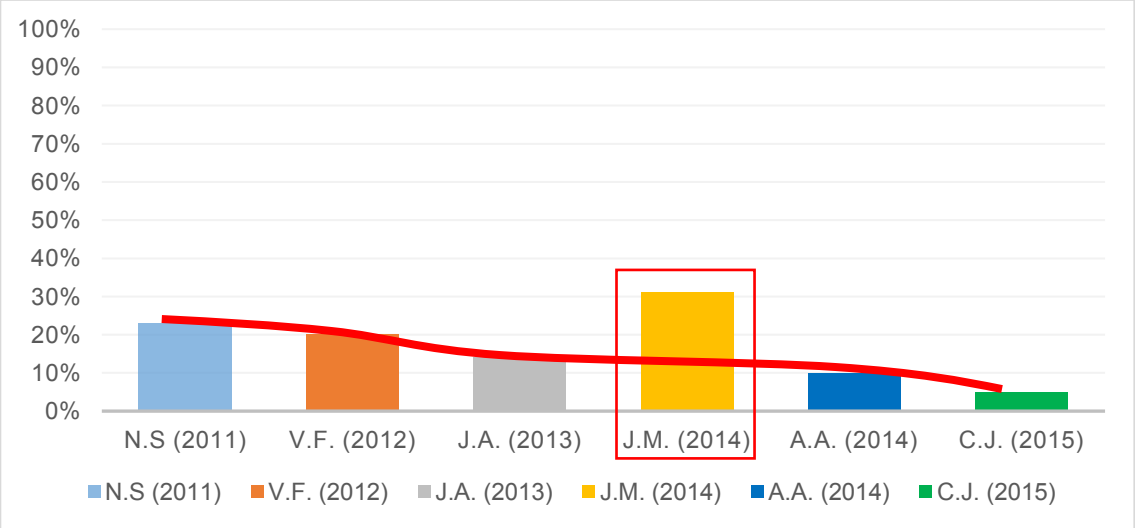


Figure 5-119 – The relation between the percentage of front verandas in the house and the length of existence of the developments, highlighting the outliner.

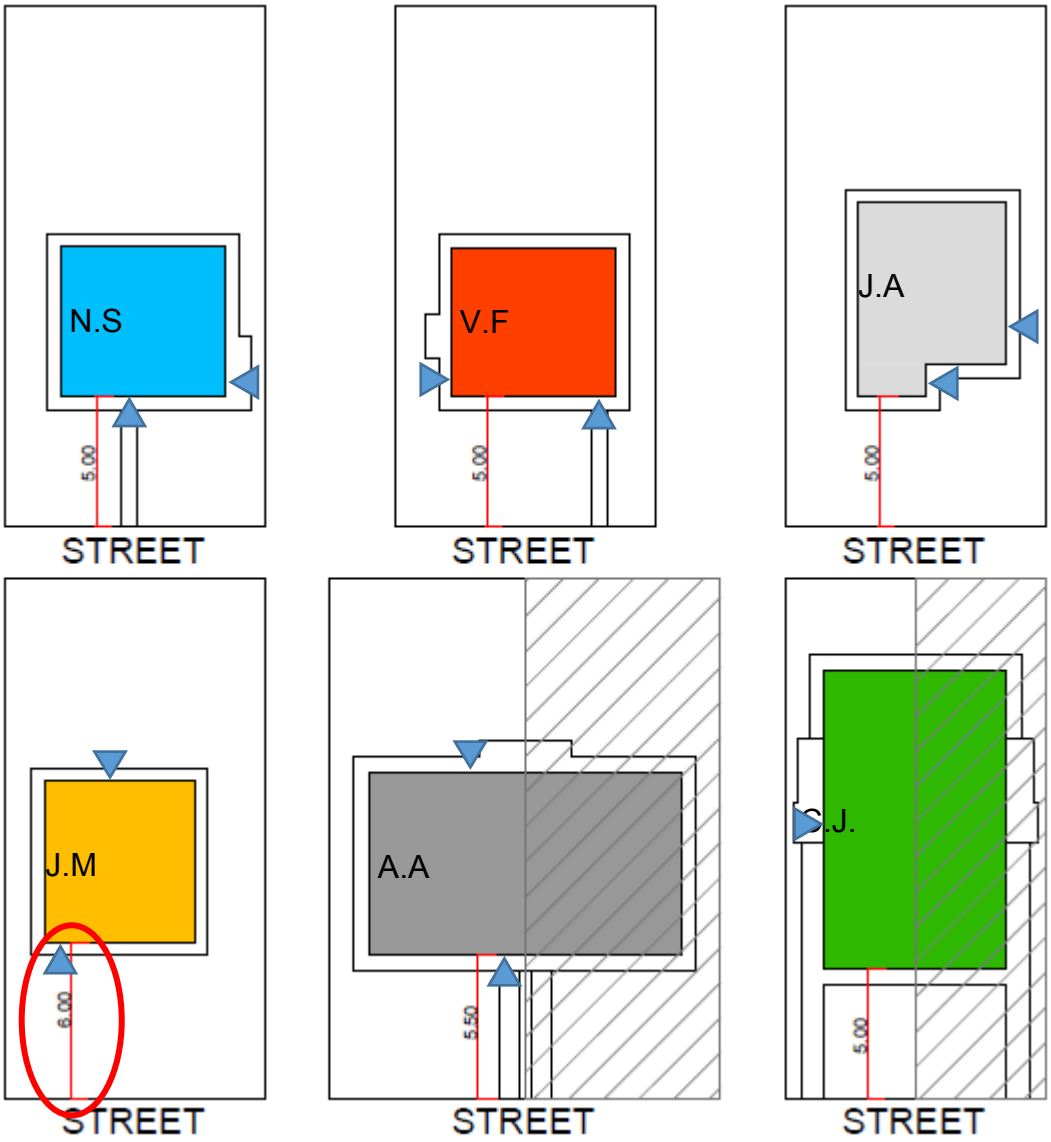


Figure 5-120 – Comparison of front setback of the houses from the street in each housing estate, showing the external doors, and highlighting Jose Maksoud.

Side and Rear Verandas

The construction of side and rear verandas appears to be closely related to the location of the laundry in the house. Two of the interviewees who had built verandas, mentioned that the reason for constructing them was to cover the laundry, and another three said that they plan to build a veranda for the same reason. Moreover, the diagrams and graphs below show that more than 30% of houses have side verandas when the laundry is located on the side, but only less than 4% have rear verandas in those cases. The figure changes drastically when the laundry is located at the back, as in the two housing estates with that typology, 26% and 16% of the houses have rear verandas, but less than 8% have side verandas. The only exception is Celina Jallad, the newest development, as was explained from this analysis, the small percentage of verandas does not yet provide any clear evidence

(see Figure 5-121 and Figure 5-122). This can be attributed to the short length of occupation. All the houses have direct access to the laundry, i.e. they have a door in the kitchen to the laundry.

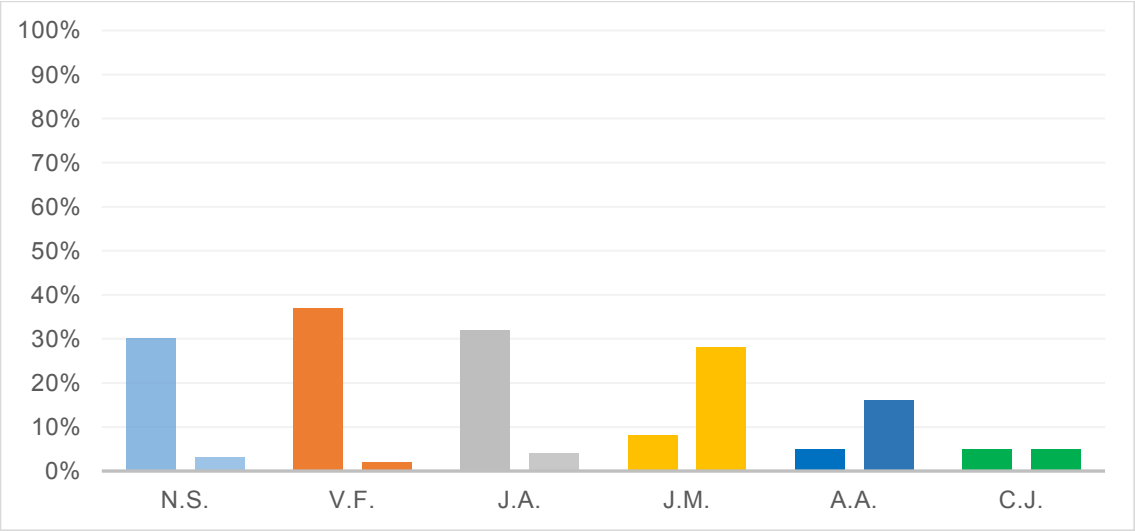


Figure 5-121 – Percentage of side (left-hand column) and rear (right-hand column) verandas in each estate.

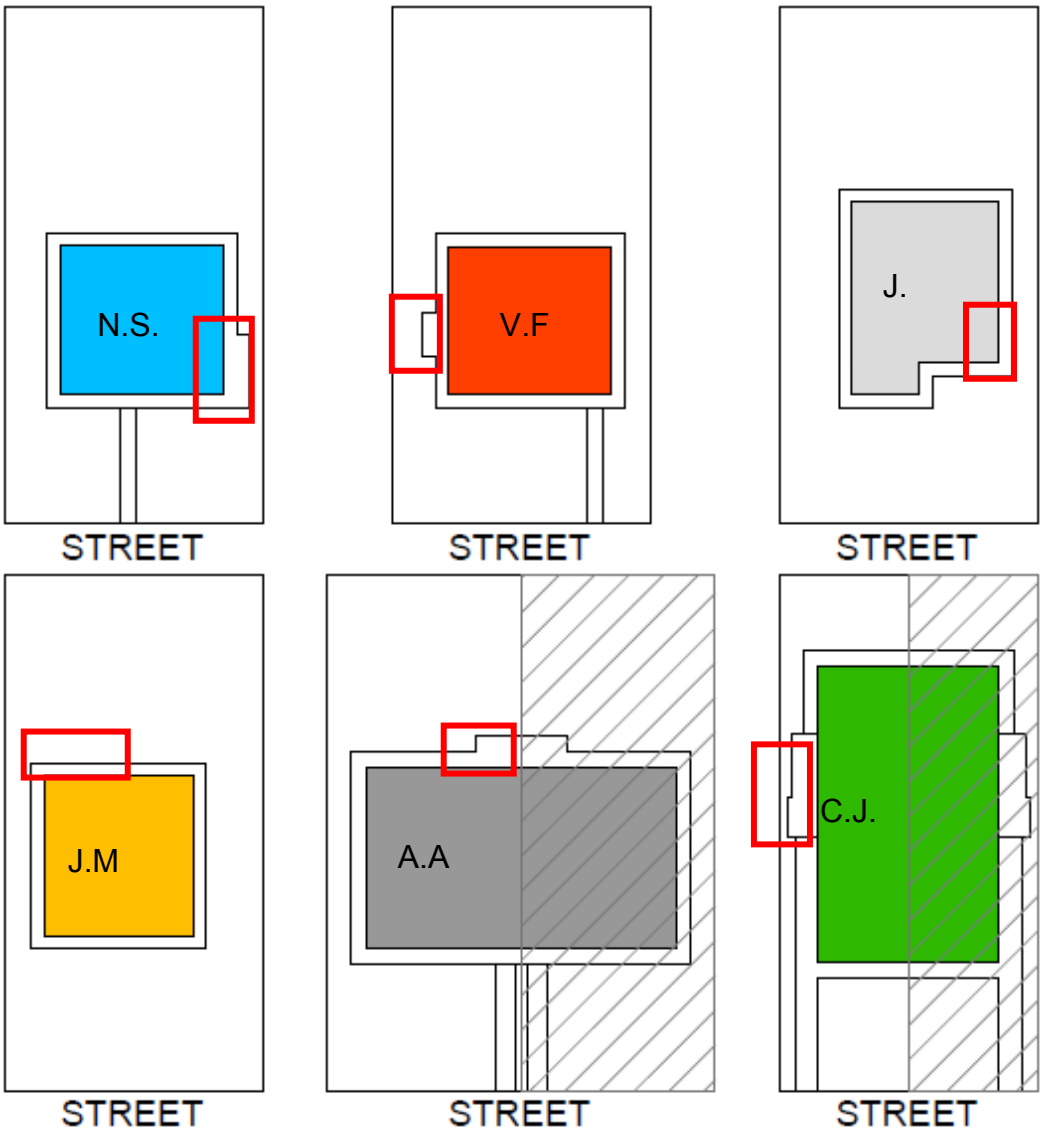


Figure 5-122 – Position of the laundry in each estate.

Extra Rooms

Currently all the housing estates, except for Ary Abussafi De Lima and Gregorio Correia, and Celina Jallad, have extensions to at least 10% of houses. Besides being the most recently built developments, Ary Abussafi De Lima and Gregorio Correia, and Celina Jallad are the only estates with semi-detached houses. This typology has been mentioned by interviewees of Celina Jallad as an obstacle for construction of extra rooms, as besides from being less flexible due to being semi-detached, their private external areas are smaller, offering less space for the construction of new rooms.

The interviews also demonstrate the small size of bedrooms and kitchens is a reason for these two rooms being the most commonly constructed by the residents. Ten of the thirty-six interviewees complained about the size of the bedrooms, while nine of thirty-six showed dissatisfaction with the size of the kitchen. Besides the

sizes of these rooms, the number of bedrooms has also been cited by six of thirty-six interviewees as a reason for their dissatisfaction.

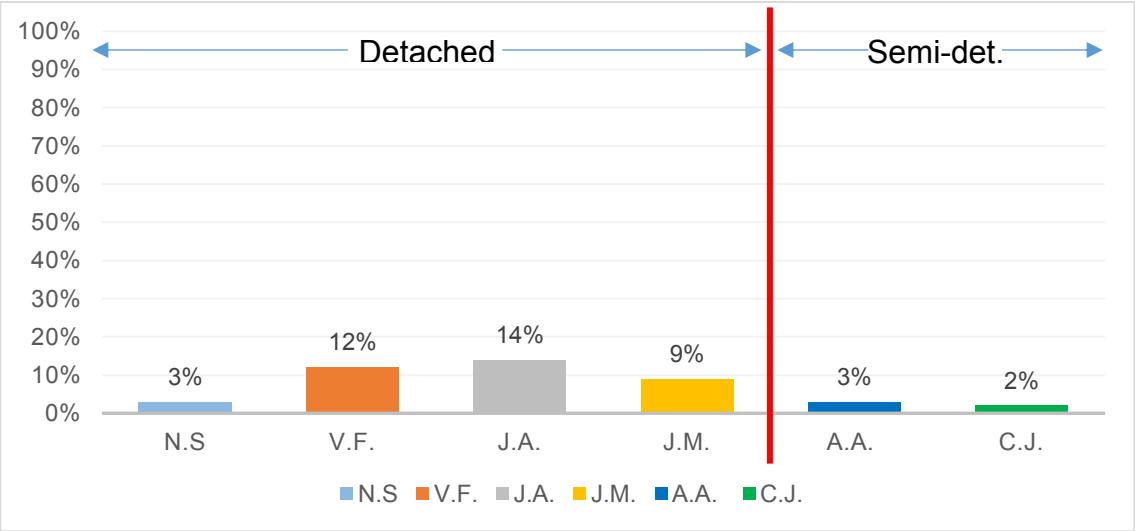


Figure 5-123 – Percentage of new bedrooms in each housing estate, separating the semi-detached to the detached houses.

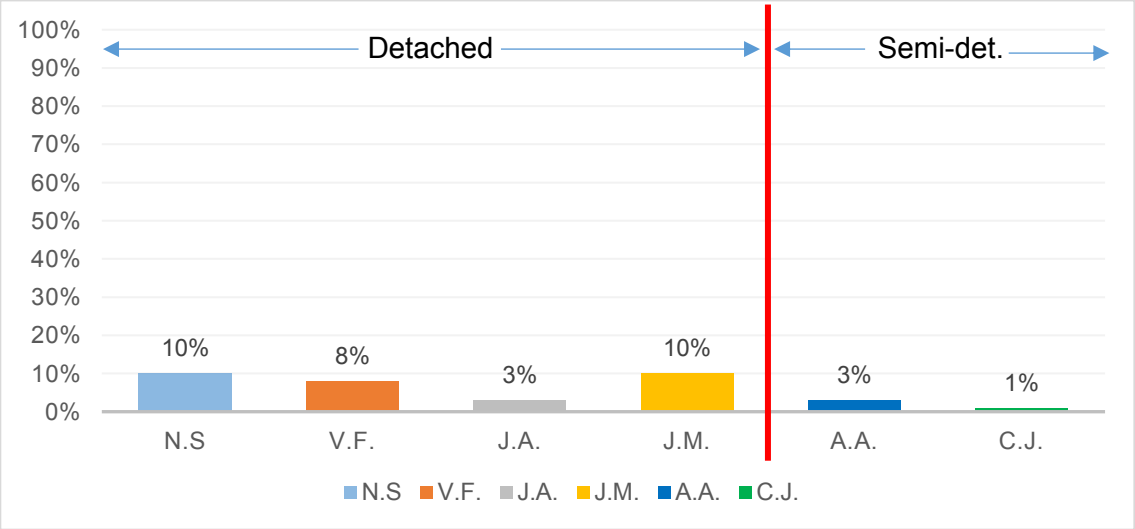


Figure 5-124 – Percentage of new kitchens in each housing estate, separating the semi-detached to the detached houses.

Flexibility of Floor Plans

Although all the four oldest housing estates – which are the estates with detached houses – have either new bedrooms or new/extended kitchens on at least 10% of the houses, it was possible to note that the majority of extra bedrooms were built detached from the main body of the house, which might correspond with the difficulty in adding an extra bedroom in the house. Therefore, it demonstrates a possible inflexibility in the houses for the construction of extensions and additions.

During the process of developing the house design for social housing, models showing the possible additions and extensions should be presented. Based on this

and on the findings of this research, the house design of the estates investigated will be analysed in order to discover the flexibility of their layouts for the addition of an extra bedroom, and extension of the kitchen, which are the most common alterations identified. As Caixa now demands all the houses to be designed for people with special needs, only the houses for people with special needs of each estate will be analysed. Nova Serrana and Vila Fernanda, the two oldest developments, have not been analysed, as they do not have houses for people with special needs.

Joao Alberto Amorim

The solution found to suit an extra bedroom in the houses of Joao Alberto Amorim estate was to use the side setback of the house. Two walls of one of the existing bedrooms would have to be demolished, in order to give access to the new bedroom. One of the walls of the new bedroom would be built on the edge of the plot. Although the kitchen of this house is considerably bigger than on the other estates – it has 8.54m^2, while the others have between 4.66m^2 and 5.99m^2 – it would be possible to extend the kitchen using the other side setback, up to the other edge of the plot (see Figure 5-125).

Besides the addition of one extra bedroom and the extension of the kitchen, the advantage of this design is the addition of an area of 2.99m^2 to the living room, without increasing the building footprint of the house. On another hand, there are three significant disadvantages. The first would be blocking at least one of the side setbacks of the house, which can be used as a direct access to the back yard, without the need of entering the house. The second is related to the narrow width of the new bedroom, as the size of the bigger side setback is only 2.24m, which would allow a usable width of only 2.12m. The third is the fact that one of the bedrooms would suffer a considerable reduction – from 10.07m^2 to 7.22m^2.

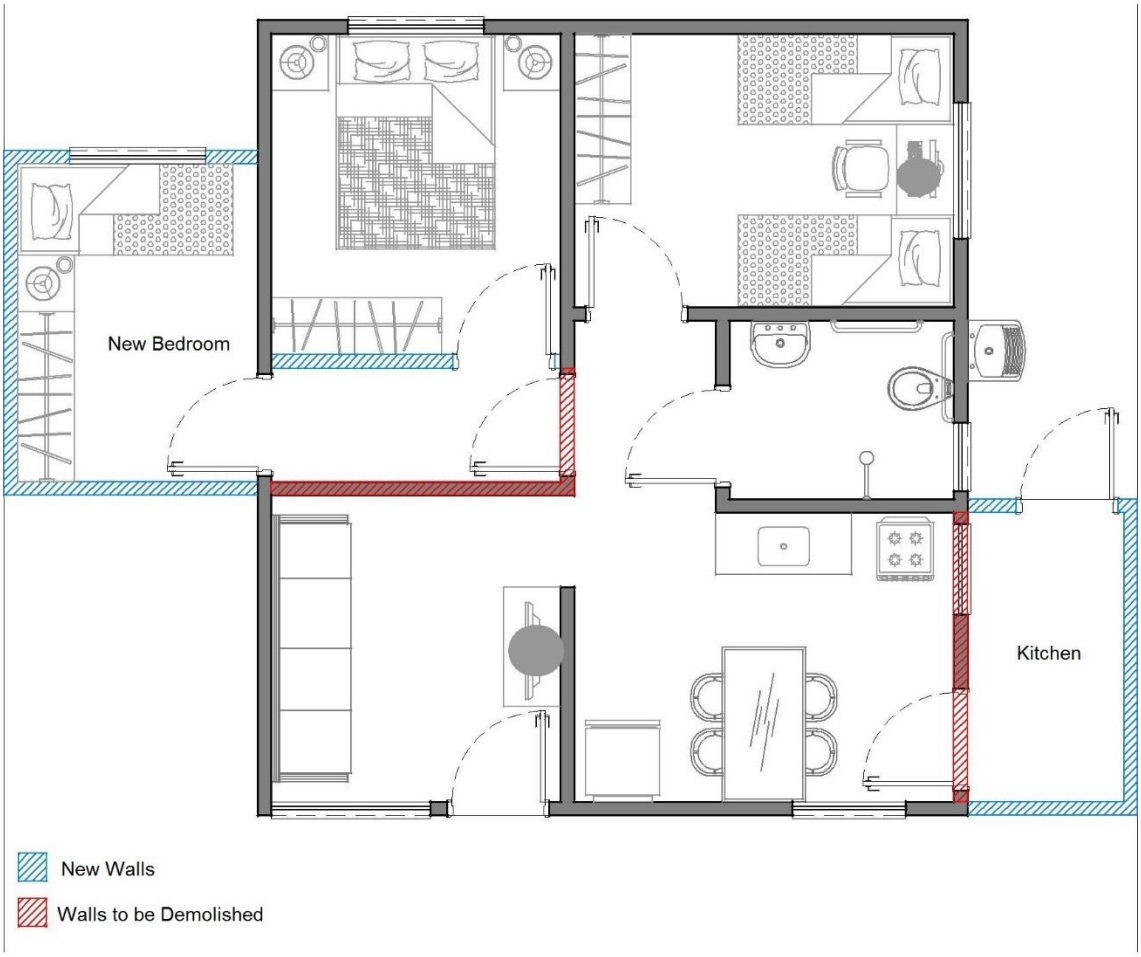


Figure 5-125 - Floor plan of house for people with special needs of Joao Alberto Amorim estate, with one extra bedroom and extended kitchen.

Jose Maksoud

In the house for people with special needs at Jose Maksoud estate, the kitchen could be extended to the back, without compromising the side setback of the house. The new bedroom could be built on the back of the house, using one of the walls of one of the existing bedrooms, and accessed by the extended kitchen (see Figure 5-126).

This design has the advantages of adding one extra bedroom, and extending the kitchen, without decreasing the area of any room of the house. It also maintains both side setbacks intact, and to keep the access from the kitchen to the back in the same place. Moreover, the new bedroom could have the same dimensions as the existing bedrooms. The disadvantage, however, is related to the direction that the roof is pitched. This issue has been mentioned by residents as an obstacle, as the roof is a gable roof with its ridge running parallel to the front and back walls.

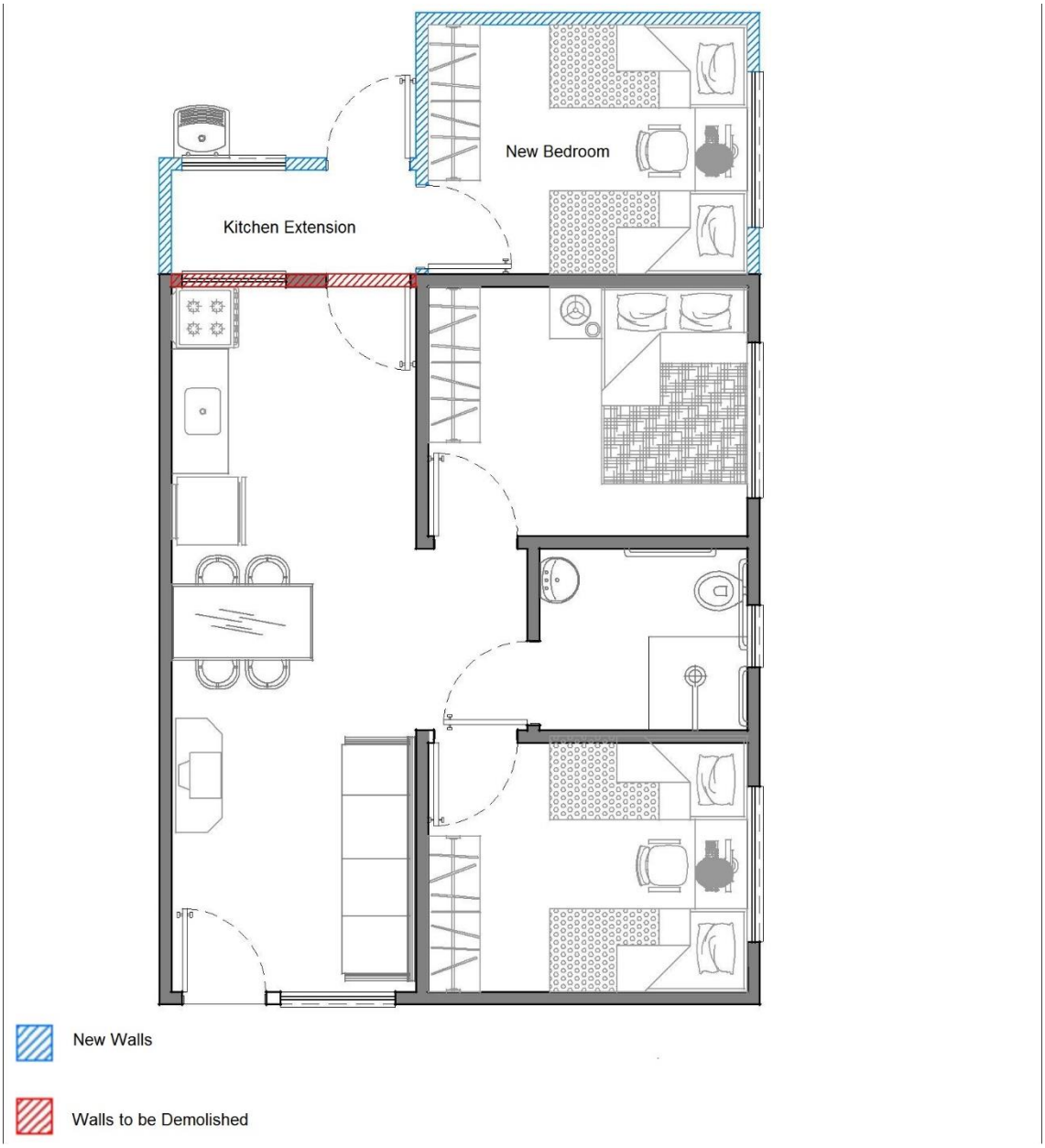


Figure 5-126 - Floor plan of house for people with special needs of Jose Maksoud estate, with one extra bedroom and extended kitchen.

Ary Abussafi De Lima and Gregorio Correia

The third bedroom and the extension of the kitchen could be added to the houses of Ary Abussafi De Lima and Gregorio Correia in the same form of Jose Maksoud's (see Figure 5-127). With this, it also presents the same advantages and disadvantages of the previous estate.

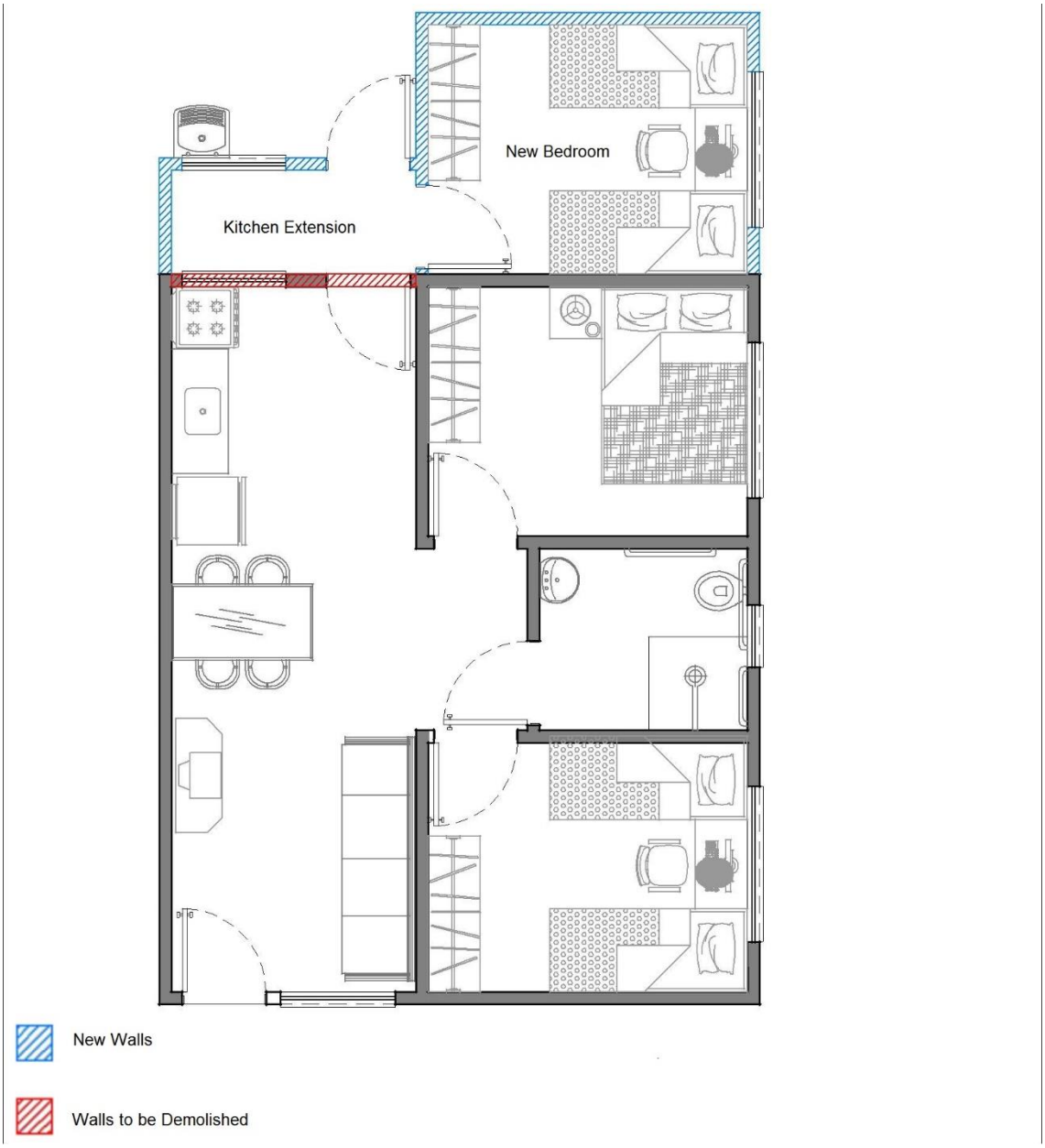


Figure 5-127 - Floor plan of the standard house of Ary Abussafi De Lima and Gregorio Correia estate, with one extra bedroom and extended kitchen.

Celina Jallad

Celina Jallad has proven to have the least flexible house amongst the four estates investigated. Extending the kitchen would reduce the only side setback of the house, which measures 1.50m. Although an extra bedroom could be added to the body of the house, the only possible access to this bedroom would be through the external area of the house (see Figure 5-128).

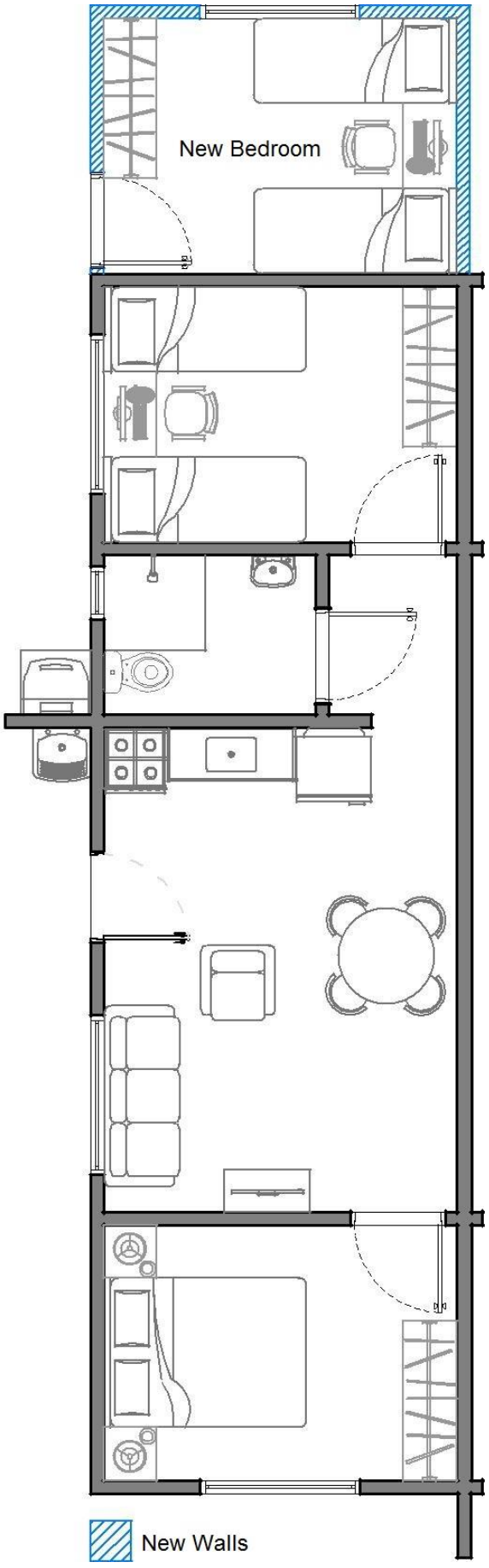


Figure 5-128 - Floor plan of the standard house of Celina Jallad estate, with one extra bedroom.

Summary

With the analysis on the flexibility of the floor plans to add one extra bedroom and to extend the kitchen in the houses investigated, it was possible to identify the most, and least, adequate features of each floor plan. When comparing the floor plans of the two detached houses, i.e. Joao Alberto Amorim and Jose Maksoud, it is clear to perceive that the latter has a better floor plan than the former. The house in Joao Alberto Amorim does not have a direct access from the kitchen to the back of the house. Furthermore, the layout of the house permits additions and extensions only on the side setbacks of the house, which obstructs the external access to the back yard, and offers a width of only up to 2.12m for extensions. In Jose Maksoud, on another hand, the floor plan of the house allows additions and extensions to be developed on the back of the house, offering more space and without interfering on the side setbacks, nor on the dimensions of the existing rooms. Nevertheless, the roof of Jose Maksoud should be of gable construction with the ridge running parallel to the side walls, instead of to the front and back, giving more flexibility for the additions and extensions.

A comparison between the semi-detached houses, Ary Abussafi De Lima and Gregorio Correia, and Celina Jallad, has demonstrated that the inflexibility of a house might not be necessarily related to the fact that they are semi-detached, as some residents have appeared to believe, but mostly to the layout of the floor plan. In terms of additions and extensions, the houses in Ary Abussafi De Lima and Gregorio Correia have a similar level of flexibility to the detached houses of Jose Maksoud, and the same modification would be recommended – the roof should pitch to the sides. Therefore, the houses in Ary Abussafi De Lima and Gregorio Correia are considerably more flexible than in Celina Jallad. Nevertheless, the width of the plots in Ary Abussafi De Lima and Gregorio Correia is 50% wider than in Celina Jallad. Therefore, the design of the floor plan of the house for Celina Jallad is clearly more challenging.

5.4 Summary of the Results of the Case Studies

The summary of the results of the case studies will be presented in two sections, one concerning the community, and the other with regards to home. These sections present a summary of the results of the data collection from the housing estates, which will be analysed alongside the theoretical framework in section 5.7.

5.4.1 Community

The table below presents the major issues discussed in the data analysis in regard to the community with their summaries of findings (see Table 5-24).

Table 5-24 – Issues investigated in the data analysis in regards to the community and their summaries of findings.

Issues Investigated	Summary of findings
Commuting to Work	Relation between the means of transport used by the residents to go to work to the percentage of people who work in the neighbourhood.
Commuting to Study	Relation between the means of transport used by the students to the percentage of people who study in the neighbourhood.
Shopping Facilities	Number of shops and prices of products can influence the level of satisfaction of residents.
Public Leisure Places	The existence of public leisure places within or nearby the estate can affect the view of residents in relation to this item.
Health Centres and Nurseries	These two items are viewed as very poor by the majority of people in four estates, except for Vila Fernanda and Jose Maksoud.
Schools	It is possible to note a relation between the percentage of people who study in the neighbourhood and their level of satisfaction with this item.
Commuting	Facilities of commuting is not considered a major issue for the residents in the housing estates investigated.
Community Events	None of the housing estates has physical places for community events, and the majority of participants in five of them see this item as poor or very poor.

The patterns of length of time of commuting to work in the six housing estates are similar. A high percentage of commuters in all the estates take between sixteen and sixty minutes to go to work. However, the percentage of people who use each means of transport varies considerably from one estate to another. In the analysis, it was possible to note that the percentage of people who work in the neighbourhood can have an impact in the percentage of residents who commute to work on foot or cycling. The location of the estate also has a high influence, as it shows that there is a higher percentage of people who commute by car in estates located near the

city centre, while a high percentage of residents who live in further localities go to work by bus.

In the analysis of length of time and means of transport to commute to study, it was also clear to perceive the relation between the percentage of people who study in the neighbourhood to their length of time to commute and their means of transports. Jose Maksoud has the highest percentage of people who study in the neighbourhood (41%), and it is the only estate with the majority of students (73%) taking fifteen minutes or less to commute to study, and the only with most of its participants (70%) going to the place where they study on foot or by bike.

The analysis of the views of the residents towards public leisure places in the community has presented one of the most outstanding results in this inquiry, as a considerably high percentage of participants in five of the six housing estates see this item as poor or very poor. This occurs due to the lack of public places for leisure in the community, as the only estate where the residents have better views about this item is also the only estate with a public leisure place nearby.

The analysis on the views of residents towards health centres and nurseries in the community shows that only two estates have achieved good scores, including Jose Maksoud, which is also the only estate that reached high scores in the items Public Leisure Places, and Schools. In regards to the perspectives of the residents about schools in the community, it is notable that proximity of schools to the estate is an important issue, as the estate with the highest percentage of people who study in the neighbourhood is also the one with the best scores. Moreover, interviewees of the estates who rated schools in the neighbourhood as low affirmed that their dissatisfaction was related to the lack of schools near their place of residence.

The facilities of commuting from each estate to the rest of the city is not seen as a major issue by the majority of residents of any of the housing estates. In terms of community events, none of the housing estates has physical places for community events, and the majority of participants in five of them see this item as poor or very poor. It also shows that the length of time of residence of people does not interfere on their views towards this item, as the estates with the highest scores are amongst the most recently built ones.

5.4.2 Home

The table below presents the major issues discussed in the data analysis in regards to the house with their summaries of findings (see Table 5-25).

Table 5-25 – Issues investigated in the data analysis in regards to the house and their summaries of findings.

Issues Investigated	Summary of findings
Technical Standards	High impact on the floorplan of the houses.
Architectural Typology*	High influence on the level of satisfaction of the residents and on the flexibility of the houses for additions and alterations.
Boundary Walls	Most common site addition in the houses. Developed mainly for security and privacy.
Front Verandas	Between 10% and 31% of houses in the five oldest estates built front verandas, mainly with the purpose of being a social and leisure place, and/or of being a garage.
Side and Rear Verandas	The construction of side and rear verandas appears to be linked to the position of the laundry in the house, as these verandas are usually built with purpose of covering the laundry.
Extra Rooms	Kitchen and bedroom are the most commonly built extra rooms, mainly due to their small sizes. Insufficient number of bedrooms is also a reason for the construction of extra bedrooms.

*being detached or semi-detached houses.

The technical standards of Caixa have demonstrated to be an important tool in the improvement of development of social housing. The size of rooms in the houses imposed by Caixa through the technical standards have been becoming bigger over the years, with the intention of improving the quality of housing delivered. The comparison between the floorplans of the houses and the minimum sizes of rooms, as imposed by Caixa, has proved the high impact the technical standards have in the development of the design of the houses. Nevertheless, although the built and useable areas of the houses have increased over the years, the private external areas of the houses have decreased. The construction of semi-detached houses in smaller plots appears to be a tendency within the development of social housing in the city. Both the smaller external areas and the semi-detached floorplans were seen by the residents as a negative aspect. The residents' complaint about the smaller plots due to the fact that it offers them less space for the construction of site additions and extra rooms. The residents also see semi-detached houses as a problem, as they believe it gives less flexibility for them to develop extensions and additions to their houses.

Boundary walls are the main addition to the houses in all the six housing estates. Even in Celina Jallad, in which all the respondents have been living for no longer than one month, 30% of the participants have built boundary walls. The estate with the highest percentage has 75% of houses with boundary walls. Furthermore, interviewees who have not yet made any addition or alteration to the house affirmed that they intend to build boundary walls in the future. The main reasons for the high percentage of construction of boundary walls is due to the fact that the residents believe that boundary walls can bring more privacy to their houses, and make them feel less insecure.

Through the observation, it was possible to note that the front verandas on the houses were built in various forms, using different materials, having as the common characteristic the purpose of covering the front setback of the house. It was also possible to observe that they are commonly used as a place for social and leisure activities, and/or as a garage. Moreover, the analysis on the pattern of percentage of construction of front verandas in the estates over the years demonstrated that longer front setbacks might encourage the construction of front verandas.

While the front verandas have the purpose of a place for social and leisure activities, as well as a garage, the rear and side verandas appear to be constructed mostly to cover the laundry. Other common addition to the houses are the kitchens and the bedrooms. At least 10% of the houses in the four oldest estates construct one or the other. The complaints in relation to these rooms are mostly their sizes; in the case of bedrooms, participants also mentioned insufficient number of bedrooms as a negative aspect of the houses. The two most recently built estates have the smallest percentage of extra rooms. This can be related either to the short length of residence of the participants, or to the typology of these houses, or both. As previously mentioned, the semi-detached houses with smaller plots have been pointed by the participants as obstacles for the construction of extra rooms. Therefore, it helps to confirm what is demonstrated on the results of the quantitative data collection – estates with semi-detached houses have a smaller percentage of houses with extra rooms.

5.5 Interviews with Local Authorities

The head of three different departments of the local authorities have been interviewed, i.e. the departments of social housing – Emha (Agência Municipal de Habitação); urban development planning – Planurb (Instituto Municipal de Planejamento Urbano); and the department of building regulation and planning – Semadur (Secretaria Municipal de Meio Ambiente e Desenvolvimento Urbano). The department of social housing develops plans and manages all the issues regarding social housing in the city, including the area where the estates will be developed, the number of houses, and the selection of people who will live there. The department of urban development planning works with the general urban planning of the city, including the creation and updating of zoning system and the Urban Development Plan of Campo Grande. The department of building regulation and planning is responsible for analysing and approving the new developments in the city, including buildings and land subdivisions.

5.5.1 Social Housing Department - Emha

The first interview was with the head of the department of social housing. There were five major issues approached in the interview – plan of number of houses to be built; criteria for selection of residents; criteria for selection of sites; typology of the houses; community facilities; and post-occupancy.

Plan of Number of Houses to be Built

The first question was how the local authorities plan the number of social houses to be built in the city. According to the head of Emha, the plans are developments based on the demand for housing in the city. There are two strands of analysis of demand; one is through the number of applicants for social housing in the city council; and the other is through analysis developed by architects who work for Emha in illegal or uninhabitable settlements. Any person who has lived in the city for at least the past two years, has an income of up to five times the minimum wage, and has never received any benefit from any public housing programme can be eligible to apply for social housing programmes at the city council. The number of applicants is what Emha uses to calculate the demand for housing in the city. The other method is through architects who work for the local authorities who analyse illegal or uninhabitable settlements in the city, and proposes new developments for these areas. With the demand and the proposals, the city council is able to request

funding for the national government for the development of social housing in the city.

Selection of Residents

The second question was related to the criteria used by the city council to select the residents of the social housing developments. The head of Emha explained that the selection of residents usually happens in accordance with the chronology of application for social housing at the city council, i.e. the earliest applicants are also the earliest to be selected for social housing. The exceptions are for specific programmes. For example, people who earn up to five times the minimum wage are eligible to apply for social housing with the local authorities, but are not able to apply for the national programme My House My Life, sponsored by Caixa, in which the applicants should earn less than three times the minimum wage.

Selection of Sites

The third question was about the criteria of the local authorities to select the sites for the development of social housing. According to the head of the department of social housing, when a new estate is developed to offer houses for people who live in illegal or uninhabitable settlements, the local authorities usually chooses areas near these settlements, as they recognise that people might have attachments to that community, including home business. In the cases of impossibility of developing new estates near the existing settlements, the city council attempts to keep the residents of that community together, i.e. although it might be in a different location, there will still be the same residents. The selection of sites for the estates built for those who apply for social housing at the city council varies. The priorities are usually areas owned by the city council. However, there are cases when the local authorities acquire sites specifically for a development, and also cases when the construction company offers the site alongside the houses. In those cases, the cost of the land to be purchased is one of the most significant aspects to be analysed, as it needs to be based on the budget available.

The fourth question, also about the selection of sites, was if the department of social housing consults the Urban Development Plan of the city, and if they consider all the economic aspects related to certain localities, including the public transport and the urban infrastructure of the areas, such as roads, water supply, and sewage. The response was yes for both questions. According to the interviewee, the local authority tries to avoid developments located in the most peripheral areas, as they

do not intend to expand the urban fabric of the city, due to the consequences it might bring, such as longer times of commuting, more demand of urban infrastructure and public transport, and higher prices of land. Nevertheless, there are cases when the budget available only allows the construction in peripheral areas, as these areas usually have lower costs. However, there is a demand from Caixa that all the developments funded by the My House My Life programme must contain the entire basic urban infrastructure, i.e. roads, water supply, and street lighting, and must be connected to the urban fabric of the city.

Although most of the housing estates investigated are located far from the city centre, the head of Emha does not see this as a problem, and they judge the use of city centre as a reference area as a “superficial analysis”, as not every citizen works in the city centre. Therefore, instead of trying to allocate all the social housing residents as close to the city centre as possible, this department usually searches for other areas of the city that can also offer job opportunities for their residents. Thus, people do not need to commute far from their houses daily. The research to identify these areas are usually developed by Planurb, which offers the results of this type of research as guidelines for the development of housing estates.

Topology of the Houses

The next question was about the choice of typology of the house, asking if it was developed by the local authorities or by the construction companies, and why some houses are detached while others are semi-detached. The answer for both questions was that it varies. The design of the houses is mostly developed by the construction company, but there are cases when they are created by the local authority. The aspect that usually determine whether a house will be detached or semi-detached is usually related to the budget available. Semi-detached houses are cheaper to build and they use less land, allowing more houses to be constructed. He states that when the land is owned by public government, and the design is developed by the local authority, they usually design detached houses, as most of the residents prefer. However, the construction companies often opt for the construction of semi-detached houses, due to its lower cost. On another hand, the local authority intends to develop a new system by the end of this year (2015) in which the applicants can state their preference of typology when applying for social housing. It does not necessarily mean that their request will be met, but it brings more information to the local authorities in regards to what the residents expect.

In accordance with the interviewee, the houses are usually designed with an expansive form, i.e. in a way that the residents can easily build one extra bedroom, one extra bathroom, side, front and rear verandas, and even rooms for home business. Moreover, the residents of social housing are exempt from paying taxes to approve their projects for extensions or alterations; are able to hire an architect from the local authority to develop the design of their extensions and alterations with lower price than the market; and are able to receive subsides from the local government for the purchase of construction material. Therefore, the local authority demonstrates intention of stimulating self-help through the design of the plan, the offer of architects with lower price, and the provision of subsides for the purchase of construction materials.

Community Facilities

The following question was how the development of community facilities for a new social housing estate is planned. The head of Emha stated that the company responsible for the development of the estate must carry out a research about the impact that the new estate will bring to that area. This research presents the closest community services to the new housing estate, and it must show whether these existing facilities will be able to meet the new demand or not. This study must be analysed and approved by the department of urban development planning - Planurb. With the analysis and approval of this inquiry, Planurb provides a report presenting the necessities of the community, e.g. the construction of new schools or nurseries. It does not always indicate that new community services should be built; instead, extensions of existing facilities can be developed to meet the new demand. According to the interviewee, the responsible for the development of the public community services varies. There are cases when they are developed by the construction company, others by the local authorities, and others by the state government.

With that response, another question arose, which was why there are numerous complaints by the residents about the lack of community facilities, especially in terms of public leisure places. The interviewee said that it might be either underestimation of the demand presented on the survey, or low budget for the development of the community facilities proposed in the guidelines offered by Planurb. In regards to public leisure places, the interviewee stated that although they consider this item as important, it is not their priority. Instead of developing new

public leisure areas, the local authority usually opts for building social housing estates near areas that already have public leisure places, such as the housing estate Jose Maksoud, as the interviewee exemplified. He said that there was a study in Jose Maksoud about the services available in that area, including the sport centre nearby. Nevertheless, due to the price of land, they are not always able to choose the most adequate area for the development of social housing.

Post-occupancy

The last question was if there is any post-occupancy study in the social housing estates. The response was yes; the local authority carries out studies of post-occupancy in all of its housing estates. The study is usually done within the first year of occupancy. The objective of the study is to observe how people adapt to the new area, e.g. if they are able to have their children in schools nearby, if they are able to commute to their place of work daily, how people interact with their neighbours, and even if there are people who sell or let their properties. According to the interviewee, not only the study aims to identify the problems, but also to help those who need when possible.

5.5.2 Department of Urban Development Planning - Planurb

The second interviewee of this section was the head of the department of urban development planning. The interview covered mainly three topics – intervention of Planurb in relation to social housing; cost of land; and community facilities.

Intervention of the Department of Urban Development Planning in Relation to Social Housing

The first question was if there is any direct intervention from this department towards to the development of social housing in the city, such as analysing if the estates are built in the recommended zones, or if they have the community facilities proposed. The answer to that question was no, this department does not intervene directly in the decisions made in regards to the development of social housing. Planurb proposes guidelines, but they do not analyse whether those guidelines are followed or not. The interviewee affirmed that he considers this lack of intervention as a default in the process of the development of social housing. According to him, the department of social housing – Emha does not always consider the guidelines proposed by Planurb, and it usually only consults the building regulations, “ignoring” the Urban Development Plan of the city and any other guideline proposed by

Planurb. He believes that the major concern of Emha is only with the number of housing units being constructed, rather than with how the city is developed.

Cost of Land

The second question was based on the affirmations of the head of Emha, which stated that the difficulty in following the Urban Development Plan of the city is due to the price of land. With this, the question to the head of Planurb was if there are any mechanisms proposed by this department to overcome the obstacles of the price of land when following the Urban Development Plan. The interviewee said that it is a difficult task as in the housing industry, “the private market dictates the rules”. Most of the sites of the developments were acquired by the construction company, which has the right to choose the site that best suits its budget. Therefore, they usually select the areas with lower cost. There is no obligation from the company to choose a site proposed by Planurb. The only limitation is in regards to the building regulations. With this, the companies often choose areas located in the periphery of the city, as they have lower cost than areas closer to the city centre.

The third question was how the study of analysis of demand of a new social housing estate is developed, analysed, and approved. The interviewee explained that this study is carried out by the construction company responsible for the development of the estate, and analysed and approved by this department. Based on the study, Planurb proposes which community services must be constructed and/or expanded. This department usually requires the construction company or the department of urban infrastructure to develop the community facilities required.

Community Facilities

The last question was based on the aforementioned response and on the complaints of the residents, which was considering that there are studies to identify the demand of community services, and that there are requirements to build these services, why the vast majority of social housing residents in Campo Grande complain about the lack of community facilities. The answer of the head of Planurb was that it is usually due to the low budget, and also due to the fact that neither the construction company nor the department of infrastructure has a specific deadline to meet these requirements, i.e. they might take as long as it is suitable for them to construct these community services.

5.5.3 Department of Building Regulation and Planning - Semadur

The third and last interviewee was the head of Semadur. The first question was if besides the building regulation, this department also consults the Urban Development Plan before approving the construction of a social housing estate. The interviewee said yes, they do. However, it does not intervene in the approval. The building regulation is the only tool used by this department that can interfere on the approval of the construction of a social housing estate. The scheme must follow strictly the regulation. However, the Urban Development Plan only offers guidelines. For instance, if when analysing a project of a social housing development the analyst perceives that the site selected is not in the area recommended by the guidelines, the analyst can only suggest other areas for the developer, but it would not be mandatory for the developer to make the alteration.

The next question was if this department analyses if the community services proposed by Planurb will be constructed in the area. The response for that question was no. Semadur only requires for the site to reserve 10% of its area for the construction of community hub. According to the interviewee, it is the duty of Planurb to propose the type, size and number of community services of a certain area, and it is either the construction company or the department of infrastructure the responsible for the construction of these community facilities.

5.6 Summary of Interviews with Local Authorities

Through the interviews with representatives of the local authorities, it was possible to compare their views with the views of the questionnaires' respondents. The head of the department of social housing has demonstrated a concern with improving the quality of housing that is being produced, and has presented numerous alternatives used by this department to improve the development of social housing. Nevertheless, the results of these alternatives could not be seen in this research, neither have they appeared to be experienced by the residents. There were three major issues covered in the interviews that stood out as being the most significant ones – sites of the housing estates, community facilities, and typology of houses.

Sites of the Housing Estates

Although there are mechanisms of the local authority to plan the urban development of the city, such as the Urban Development Plan, which points to the most suitable areas for the development of social housing, the value of land seems to be one of the main elements of influence for the selection of sites. As stated by Planurb, the plans they develop for the growth of the city are not always consulted by Emha. Semadur also confirmed that they do not intervene in the approval of projects located outside the recommended development areas. Therefore, the lack of mandatory fulfilment of the guidelines proposed in the Urban Development Plan has facilitated for the developers to choose the most profitable areas, instead of selecting the most adequate ones for the residents. Caixa and the local authority have regulatory tools to control some aspects of the selection of the land, such as the fact that the area must contain basic infrastructure, and that it must be connected to the urban fabric of the city. However, there are no specifications in terms of nearby shopping facilities and distance from the city centre, for example.

The head of Emha also mentioned about developing social housing in areas of the city in which people could have job opportunities, without necessarily being located near the city centre. Nevertheless, he stated that this is a recent plan, thus none of the housing estates investigated was fully planned based on this idea. However, the head of Emha said that Jose Maksoud was the first estate where this plan was partially applied, as the land was selected based on the proximity to the existing settlement in which the residents of the social housing estates lived. The surveys carried out in this work demonstrates that Jose Maksoud has the highest percentage of residents who work in the neighbourhood amongst the estates investigated.

Community Facilities

When selecting a site for the development of social housing, community facilities of the areas do not appear to be amongst the items considered neither by the local authority, nor by the developers. Although there are surveys about the demand of community services in the area prior to the construction of the estates, the results of these surveys seem to be underestimated. These surveys are carried out by the construction companies, which are usually responsible for the construction of community services as demanded in the area. Therefore, the results of the surveys will consequently determine whether the construction company will have to develop community services for the area or not. Notwithstanding any possible underestimation of the demands in an area, there does not seem to be enforcement of any of the parties – developers or local authorities – to construct the facilities needed.

Typology of the Houses

When analysing the floorplans of the houses, it was possible to deduce a clear aim in attempting to design as close to the minimum sizes required by Caixa as possible. On the other hand, Emha argues that the houses are designed in a form that they can be easily expanded, especially to include an extra bedroom to the main body of the house. However, the observation study has demonstrated that in most houses, extra bedrooms are usually constructed detached from the house. In the newest developments, people have even less flexibility to expand their houses, as their private plots are smaller, and the layout of the houses is clearly less flexible for adjustments. Therefore, although the department of social housing of Campo Grande seems to recognise the importance of a flexible floorplan in the houses, their views of what has been produced conflicts with what exists in reality and how people are experiencing these houses.

5.7 Relation between the Theoretical Framework and the Data Collection

This section aims at building a linkage between the theoretical framework of this research, presented in Chapter 3, and the data collection, which will provide a fundamental contribution to the development of the proposal. One of the most important aspects identified in the theoretical studies is the knowledge that the planners, architects, or whoever is in charge of the design of a building, must be attentive not to use only their own values and cultural perspectives, but those of the users. Based on these issues, this section will compare and relate the academic studies involving the subject of home and community alongside the real context of the residents of social housing in Campo Grande.

5.7.1 Principles of Community

In this section, the main aspects for the principles of community are readdressed and reviewed, alongside the information obtained from the data collection. The table below presents the relation between the principles stated in the theoretical framework, and how they reflect to the data collection (see Table 5-26).

Table 5-26 - Relationship between theoretical framework and data collection

	Theoretical Framework	Data Collection
Community and Society	- Community is a small area, which can be located within a society – a larger area.	- It is possible to relate the social housing estates to the communities, and the city of Campo Grande to the society.
Locality and Size	- Community can be based on a shared geographical area; - Community can have either a small or a large size.	- Each social housing estate can be seen as a community based on a common geographical area, with variable sizes from one another.
Common Bonds	- Community can be formed based on common location or on common interests.	- The common aspect shared by the residents from the housing estates is location, which is the common point of their community.

	Theoretical Framework	Data Collection
Social Interaction and Sentiment of Attachment	- Members of a community present social interaction; - The level of social interaction can influence the level of sentiment of attachment.	- Low level of social interaction between the residents. - Opposite to what is commonly stated by scholars, the residents still present a sentiment of attachment, regardless of their level of social interaction.
Social Variables	- Gender, children, race, home ownership, age, social class, length of residency, and income can influence the level of social interaction and sentiment of attachment.	- It was found that home ownership has a strong influence on a person's sentiment of attachment, as the residents relate their positive sentiment to the fact that they own their homes.
Mobility	- Communities are usually located far from city centres; - For mobility reasons, neighbourhood has usually a bigger importance to lower income people;	- With the housing estates located far from the city centre, and the residents having a low income (which influences the affordability for transport), the community has a great importance. This reflects on the dissatisfaction of the residents with the lack of community facilities in their neighbourhood.
Artificially Created Communities and Boundaries	- People develop boundaries for protection against threats; - Planners and developers should intervene in the process of creating sentiment of community.	- Boundary walls around the houses are the most common addition developed by the residents, with the aim of bringing more security. - Although five out of the six estates do not have areas for community activities, a significant number of residents confirmed that they have a sentiment of community.

	Theoretical Framework	Data Collection
Mixed Income Communities	- Lower income people living in the same neighbourhood as higher income families can have access to more services; - Most significant advantages are related to services and amenities in the community, which can be achieved without mixing income.	- All the residents of the housing estates present around the same income. - Services, such as shopping facilities, were found in almost all the housing estates, regardless of the fact that the residents do not have a high income.
The Influence of the Physical Elements in the Neighbourhood	- The design of the houses, plots, streets, and public spaces can influence the interaction between the residents, and strengthen their sense of community; - When a public space is designed appropriately, it stimulates the neighbours to inhabit; - It is fundamental to understand how proposals will relate to the cultural values of the residents.	- It was found that the streets and pavements of the housing estates are commonly used by the residents as areas of leisure and social activities. However, these areas do not appear to be designed with that aim. Therefore, the design of these spaces should be planned in a form that meets the demands and the cultural values and habits of the residents. - Instead of a design to encourage activities in the public spaces, the design should be able to allocate more effectively the already existing activities in those spaces.

5.7.2 Principles of Home

This section presents a similar structure to the previous section, relating the main principles of home to the information discovered in the data collection. The analysis between the theoretical framework and the data collection relating to principles of home will be presented in three separate parts, being firstly space (see Table 5-27); then human needs (see Table 5-28); and finally place (see Table 5-29).

Table 5-27 - Connection between theoretical framework and data collection

	Theoretical Framework	Data Collection
Space	Formal Composition - Rooms - User Needs	- Most residents demonstrated satisfaction in relation to the rooms of their houses, and affirmed that they meet their basic needs; - Some residents felt more satisfied after the construction of additional rooms/or extension of existing rooms.
	Construction Materials - Brick - Concrete - Wood - Glass - Steel	- The houses of most estates present load-bearing walls, which hinder alterations in the house.
	Architectural Typology - Villa - Semi-detached - Terraced	- There is a greater level of dissatisfaction amongst residents living in semi-detached houses. This is related to the lack of flexibility for additions and extensions.
	Threshold - Offset - Entrance	- The front setbacks of the houses are the link between the private and public spaces, and are commonly used for social activities by the residents.

Table 5-28 - Connection between theoretical framework and data collection

	Theoretical Framework	Data Collection
Human Needs	Primary Needs - Shelter - Safety	- The residents demonstrated satisfaction with the house seen as a shelter, i.e. meeting their basic needs; - For a substantial number of residents, the construction of boundary walls was necessary to provide sentiment of safety.
	Psychological Needs - Sentiment of Attachment - Status and Aesthetics - Self-fulfilment	- The facts that the residents have home-ownership, and that their house is the place where they live with their families, appeared to be the strongest elements to influence the sentiment of attachment for people; - All residents responded as being satisfied with the aesthetics of the house.; - Residents who developed alterations, stated they felt more satisfied after the alterations; - Residents who did not developed alterations, confirmed that they intend to carry out changes to their houses in the future. Therefore, it is possible to perceive that the ability to develop alterations in the house is a crucial key for the self-fulfilment of the residents.

Table 5-29 - Connection between theoretical framework and data collection

	Theoretical Framework	Data Collection
Place	- Place is a space experienced by people, which generates activities and can result in a sentiment of attachment; - In the same way that a place can shape people, it can also be shaped by people; - Home is a place, as it is the connection of a house (space), with the human needs and emotional attachments.	- All the residents perceive their houses as more than a space – they consider their house to be their home, i.e. a place; - The residents present feelings of attachment to the houses due to the ownership and to their activities in that place; - Some of the residents change their homes to suit their needs.

With the aforementioned tables, it's possible to note how the data collection correlates with all the aspects approached in the theoretical framework, from the

principles of community, to the principles of home. This shows that the elements previously discussed in the theoretical frame work not only provided the basis for the development of the data collection, but also offered a fundamental tool to understand the information identified.

5.7.3 Home and Community Development

The theoretical framework points out that home and community should be developed through place-based strategies. It discusses the different types of self-help, as a form of approaching bottom-up strategies, in contrast to the top-down system currently adopted by the government. This section readdresses each of the self-help models presented in the theoretical framework, and compares them with the existing situation – as adopted by the government in the social housing estates in Campo Grande - in regards to four different points: Land provision, urban infrastructure, house, and house improvements. Finally, an analysis on the applicability and suitability of the models with regards to the needs of the residents will be presented.

Land

Table 5-30 - Land provision

Model		House Provided by			
		The Government	Residents	Institutions/ Organisations	Developers
Theoretical Framework	Site and services	✓	✗	✓	✗
	Incremental	✓	✗	✓	✗
	In-situ upgrading	✓	✓	✓	✗
	Progressive improvement	✓	✗	✗	✗
	Housing cooperative	✗	✗	✓	✗
Existing Situation		✓	✗	✗	✓

The data collection has pointed towards home ownership as one of the strongest points as viewed by the residents in relation to their satisfaction and feeling of attachment to their homes. Developments based on housing cooperatives are usually based on a lease for the private unit, instead of providing land ownership. Therefore, a model fully based on the traditional model of a housing cooperative, could not deliver one of the most important aspects found in the data collection in relation to home - ownership. In the in-situ upgrading model, the acquisition of land is not necessarily provided by the residents through purchase, as it often focuses on illegal settlements. Instead, the government, or independent institutions, provides the residents with tenure for the land they occupy. The reason for this is connected to the possible links and attachment that the residents may have with the area and their neighbours. Nevertheless, other models can also utilise the same location of an illegal settlement, without necessarily using the same private unit for the development of a housing estate. For instance, the government may construct a housing development in an illegal settlement for the inhabitants who live in that area. The residents may not necessarily be relocated to the same plot, or private unit, but will remain in the same community. This strategy was adopted in the development of one of the housing estates investigated – the estate with the highest level of satisfaction in all the aspects investigated.

Urban Infrastructure

Table 5-31 - Urban Infrastructure

Model		Urban Infrastructure Provided by			
		The Government	Residents	Institutions/ Organisations	Developers
Theoretical Framework	Site and services	✓	✗	✓	✗
	Incremental	✓	✗	✓	✗
	In-situ upgrading	✓	✗	✓	✗
	Progressive improvement	✗	✓	✗	✗
	Housing cooperative	✗	✗	✓	✗
Existing Situation		✓	✗	✗	✓

It is only the progressive improvement model that relies on the residents to develop urban infrastructure. Although this model suggests that technical assistant should be provided for the residents, the urban infrastructure is still considered by most scholars and self-help models as an element that should be provided by the government, or other institutions or associations, for the residents. In the current model, the residents receive the urban infrastructure of the entire housing estate from the government.

House

Table 5-32 - House

Model		House Provided by			
		The Government	Residents	Institutions/ Organisations	Developers
Theoretical Framework	Site and services	✗	✓	✗	✗
	Incremental	✓	✗	✓	✗
	In-situ upgrading	✓	✓	✓	✗
	Progressive improvement	✗	✓	✗	✗
	Housing cooperative	✗	✗	✓	✗
Existing Situation		✓	✗	✗	✓

The current system contrasts with the site and services, in-situ upgrading, and progressive improvement model regarding the participation of the residents in the process of building their houses. Although self-help models such as the three previously mentioned, rely on the idea that participation from residents in the construction of their houses can increase their feeling of attachment and commitment to their houses, this research has found that both the feeling of attachment and commitment are greatly present amongst the residents of the current model. Besides the interviews, which point to the high level of feeling of attachment, the observations have also shown a good quality of improvements done to the houses, which confirms their commitment to the properties.

House Improvements

Table 5-33 - House improvements

Model		House Improvements Provided by			
		The Government	Residents	Institutions/ Organisations	Developers
Theoretical Framework	Site and services	✗	✓	✗	✗
	Incremental	✗	✓	✗	✗
	In-situ upgrading	✓	✓	✓	✗
	Progressive improvement	✗	✓	✗	✗
	Housing cooperative	✗	✗	✗	✗
Existing Situation		✗	✓	✗	✗

The point of congruence amongst five out of the six models presented is the involvement of the residents in the house improvements. Since the residents do not own the house in the housing cooperatives model, this is not applicable. The residents of the social housing estates investigated demonstrated to be capable to develop house improvements on their own, given that the appropriate conditions and flexibility are provided.

The Level of Government Intervention in Housing Development

The structure proposed in the theoretical framework, which points to a higher intervention from the government in the early stages of the development of housing, and greater contribution of the residents in the final phases, was reinforced with the information found in the data collection. Nevertheless, besides the possibility for house improvements, it is fundamental that the housing estates, from the early stages, are designed and built in a form that suits the needs and values of the residents, as seen from their perspective. Therefore, the information obtained in the data collection should guide the design for the layout of the estates, the

development of community services, and the design and construction of the houses. This brings an indirect contribution and participation of the residents to the early stages of the development of the housing estates, since they will be designed and built based on their real needs, utilising the information gathered from them.

5.8 Triangulation of Results

The triangulation of the data collected was used to cross reference and improve the level of validity of the research. The three elements of the triangulation of this research were the perception of the residents, collected through questionnaires and interviews; the views of the local authority, obtained through interviews; and the analysis of plans and participant observation, which were carried out by the researcher.

There are five aspects that stood out in the research, which were validated by the three elements of the triangulation: the importance of home ownership for the residents; the significance of community facilities; the linkage between the housing estates and the urban fabric of the city; the importance of houses with flexibility for alterations; and the capability of the residents to develop alterations to their houses (see Figure 5-129).

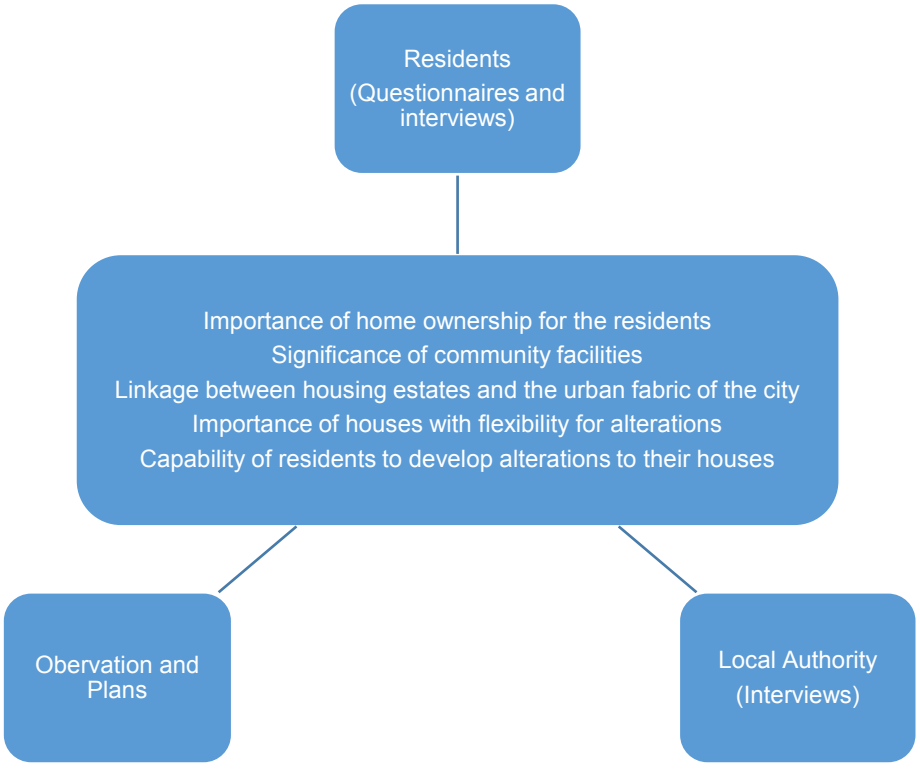


Figure 5-129 - Triangulation of Results

The residents have demonstrated that their home ownership was the most positive aspect of their houses. This reflects on the physical environment throughout the estate, where it was possible to observe that residents tend to invest in improvements to their houses, and look after their neighbourhood when they own

the house. The local authority also agrees with the importance of home ownership for social housing residents.

Through the observation, it was possible to note that none of the housing estates has public community facilities. However, one of them is located adjacent to areas where community facilities are provided. As a result, this housing estate has scored significantly better than the others in relation to the level of satisfaction of residents. Moreover, the local authority has confirmed that research was developed with regards of community facilities to choose the most appropriate location for this estate.

Although the majority of the housing estates are located in the periphery of the city, it was noted through the maps and observation that they are all connected through roads and avenues to the main urban fabric of the city. The local authority has also stated that all the social housing estates that they develop present a linkage with the city. Therefore, commuting facilities has been positively viewed by most residents of the social housing estates investigated.

The layout of the houses does not satisfy all residents of the social housing estates, as found through the questionnaires and interviews. Therefore, the houses should present flexibility for the residents to adapt their houses in accordance with their needs. The observation has also confirmed that the residents tend to develop alterations to their houses when they consider necessary. The local authority has acknowledged the importance of flexible houses.

Finally, the questionnaires, interviews, and observation, have pointed towards the capability of the residents in developing alterations to their own houses. The interviews have also demonstrated that the residents are more satisfied after the alterations. Moreover, the local authority recognises that the residents are able to develop alterations to their houses independently.

5.9 Conclusion

The typology of the houses – detached or semi-detached – has a high degree of influence in the level of satisfaction of the residents due to the layout of the houses and to their private external areas. The analysis has shown that despite controlling the built and usable area of the houses, Caixa's technical standards do not influence the quality of design of the houses. Moreover, the developers are incentivised to design houses with as low cost as possible. The ideal typology of the house should then have enough space and flexibility for the construction of an extra bedroom and expansion of the kitchen.

Boundary walls are shown to be important for the residents, for both security and privacy. The high percentage of houses with boundary walls, even in the new developments, has demonstrated the capability of the residents to build this item. Moreover, the observations have highlighted houses with boundary walls that have been constructed to a high quality. There is also a high percentage of houses with a front veranda. It is important to acknowledge the relevance of this item to the houses, as they may have multiple uses, including as an area for leisure and socialising in the house. It is also important to consider the size of the front setbacks, as this study has shown that bigger front setbacks facilitate for the construction of front verandas. Side and rear verandas, on the other hand, are likely to be built only when the laundry is located in that area. Therefore, it is necessary to facilitate the construction of verandas where the laundry is located, regardless of whether they are on the back, or side, of the house.

The lack of community facilities in the housing developments has been shown as a major issue, resulting in a low level of satisfaction of the residents in relation to their housing estates. Although there is a specific regulation regarding an area in the estate to be reserved for the construction of a community hub, there are not clear requirements about what has to be built and what the timescale is. Therefore, without clarity on: what should be built, when, and even by whom; the housing estates remain lacking the public facilities that should be available for their residents. Although commuting and distance from city centre have not appeared to be major problems, the location of the housing development can be important for the quality of life of its residents. Jose Maksoud, the fourth estate investigated, has shown that a study in the area where the housing estate will be built can bring positive impacts to that development. Although that estate is not located near the city centre, it is

located near an area with public facilities, which might reduce the need of developing new community services.

In summary of the views and roles of all the parts involved, the residents have demonstrated dissatisfaction with the inflexibility of the houses for additions and alterations, and with lack of community facilities in their estate; Emha, the department of social housing, has appeared to be concerned with the quality of social housing being produced, and aims to improve. Nevertheless, the research has shown that the current methods used by Emha to develop social housing presents gaps in the quality of delivery of social housing; Planurb, the department of urban development planning, is able to propose guidelines for the growth and development of the city and its constructions. However, this department is unable to control or intervene directly in the process of development of social housing; Semadur, the department of building regulation and planning, is able to regulate and to interfere on the development of social housing. Nevertheless, this department analyses and approves the development's projects based only on the building regulations, without considering the urban development plan of the city (see Figure 5-130). With the information collected, it is possible to propose guidelines to improve the quality of social housing being produced in the city.

Figure 5-130 – Views and roles of the three council departments interviewed and the residents.

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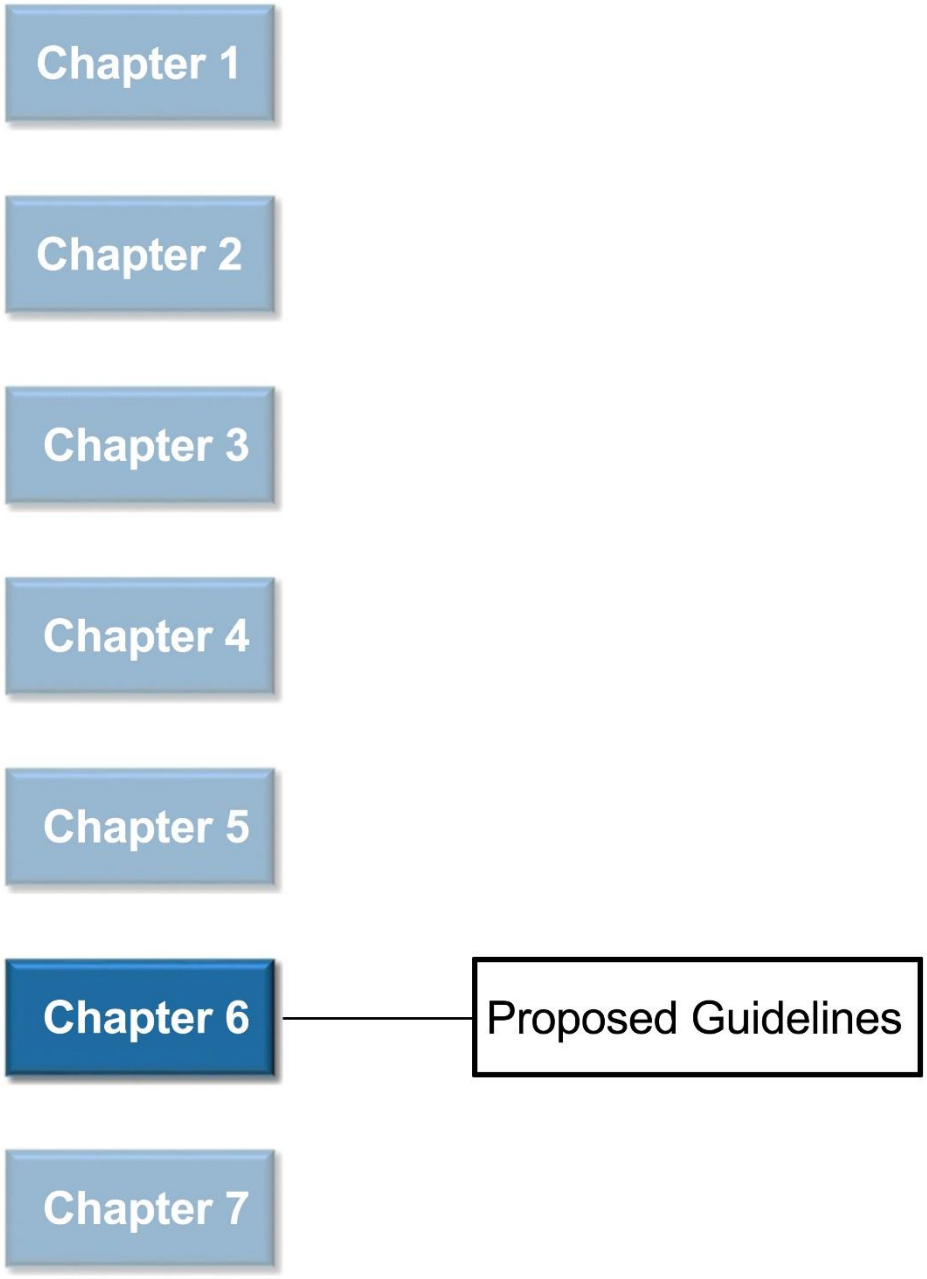
Chapter 1
Chapter 2
Chapter 3
Chapter 4
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Chapter 6
Proposed Guidelines
Chapter 7

Chapter 6: Proposed Guidelines

The data collection has identified gaps in the delivery of social housing in Campo Grande. In the theoretical framework, the needs and characteristics of the community and home development are emphasised. Through the data collection, it is possible to perceive the lack of contributing elements of community and housing in the development of social housing. This chapter addresses these issues by proposing guidelines for the development of social housing in the city of Campo Grande. The guidelines are based on the theoretical studies of this research, and on the results and analysis of the data collection; and they contain aspects covering the development of both housing and community.

6.1 The Development of the Guidelines

During the development of the guidelines, the main deficiencies identified in the data collection have been focused upon. Through the questionnaires, observations, and the interviews with both residents and local authority representatives, the issues in the development of social housing have been clarified and will be addressed as follows:

Community Facilities

There is a high level of dissatisfaction amongst residents with the lack of community facilities in the housing estates. Through the interviews with the representative of city council departments, it was possible to conclude that there is a failure in the current procurement process of social housing development regarding the delivery of these facilities. Therefore, a revised process will be proposed.

The lack of data and results about community facilities in the data collection is due to the fact that none of the housing estates investigated have any community facilities. Therefore, this issue could not be analytically approached. This gives rise to the importance to anticipate and investigate the appropriate models for the design of the area reserved for a community hub and facilities. Thus a process to ensure the delivery of these facilities will be included.

Public Areas for Leisure and Social Interaction

Although public areas are included within the community facilities, places for leisure and social interaction have a particular importance in this research. The first is the fact that the results of the data collection point to an overwhelming level of

dissatisfaction amongst the residents in relation to places for leisure and social interaction. Whereas, the theoretical framework highlights the importance of these places for the development of communities. In addition, the studies presented in the literature review have also emphasises how public leisure places can have a particular benefits for low-income communities. This concept has been reinforced through the data collection of this research, as the topic of public areas for leisure has followed the trend of the community facility with the highest level of dissatisfaction amongst residents of most of the housing estates. In the interviews, the residents confirmed that they have a sentiment of community in their neighbourhoods. Nevertheless, it is fundamentally important to provide them with places in which they can maintain this sentiment through social interaction, and even strengthen their sense of community.

The observation section has shown that the usual place for social interaction for the residents is currently on the pavements, right in front of their houses. Although there were no complaints regarding to the use of pavements as an area for social interaction in the data collection, it was possible to observe that this location for socialising might hinder or interfere with the movement of pedestrians in those thoroughfare. Hence this is also an issue to be addressed.

In addition to places for social interaction, residents have also demonstrated concerns about safe places for children to play. The data collection, in both observation and resident interviews, showed that children often play on the local streets. The residents' complaints are related to the lack of appropriate areas for their children to play; and that cars often pass through the local streets "at high speed".

Therefore, there are a number of items to be addressed - design of public leisure places, traffic speed in local streets, and design of pedestrian spaces.

Size of Parcels and Plots of Land

Due to the small space standards in the houses, residents have a desire to build additions and extensions to their houses. However, their will – and in some cases, needs – to make amendments to their house are thwarted by the size and layout of their plots in certain housing estates.

The current city council regulations require that land subdivisions for social housing estates have a minimum plot size of 200m². This term is used ambiguously in the regulations, so for the purposes of this research, it will be known as a parcel of land. This is because the regulations also state that the parcels maybe subdivided into plots with an absolute minimum size of 75m^2.

In the four oldest housing estates, the size of parcels and plots are the same, i.e. 200m^2. However, due to this regulation, the developers have been able to produce plot sizes of 150m^2 and 100m^2 in the two most recently built estates, respectively. As shown in the data collection, there is considerable dissatisfaction amongst residents who live in the estates with smaller plots. The reason is related to the lack of private external space and inadequate space for extensions. Therefore, the relationship between parcels and plots of land is addressed in the guidelines.

Relation between Internal and External Spaces

The observation section of the data collection confirmed the habit that the residents use the private external spaces of their houses. The questionnaires have also confirmed it, as a large percentage of residents build covered verandas, in which these activities can take place. While back and side verandas are usually built to cover the laundry, front verandas, which were the most commonly built addition in the estates, are used as areas for leisure and to accommodate a car. Therefore, due to their function as a link between the private and public external spaces, it is important to create mechanisms that ensure that the residents will have the flexibility to build front verandas in future developments. Although the regulations impose minimum front setbacks for multiple storey houses, there are no specific limits on front setbacks to single storey houses.

Internal Layout

The assessment of the internal layout of the houses was carried out mostly through the analysis of the floor plans and the interviews with the residents. The analysis of the floor plans pointed to lack of flexibility in the houses designs for the most usually required addition, i.e. a third bedroom. It was observed as part of the data collection that third bedrooms are usually built detached from the house, which can be linked to the lack of flexibility of the houses' internal layout. As a kitchen extension is also a commonly developed alteration to the houses; the proposal to incorporate, with ease, these two alteration: an extra bedroom and/or a kitchen extension, must be

presented in a way that it shows the potential future development of one, or both. The data collection also revealed that residents built one or the other generally, and only a few built both. This is due to individual needs and/or capability along with the flexibility available. The guidelines will ensure that future internal layouts will enable both the third bedroom and kitchen extension to be satisfactorily provided by the residents.

6.2 Presentation

Based on the arguments presented in the previous section, fifteen guidelines for the development of social housing in the city of Campo Grande will be proposed, which will be divided into two sections – Community and Houses. The Community section will present seven guidelines related to the housing estates, while the eight guidelines in the Houses section will cover issues from plots to the internal layout of the houses.

The order of the presentation of the guidelines will be as follows:

Community:

- Procurement Process
- Area Reserved for Pre-Development Community Hubs
- Area Reserved for Post-Development Community Hubs
- Public Leisure Places
- Local Streets – Pedestrian Zones
- Local Streets – Traffic Speed
- Collector Streets – Pedestrian Zones

Houses:

- Parcels and Plots of Land
- Roof Orientation
- Front Setbacks
- Integration of Inside and the Outside
- Internal Layout
- Extensions
- House Structure
- Living Rooms and Kitchens

The guidelines will follow the same pattern of presentation, with the existing situation and city council requirements on the left, and the proposals on the right. The requirements for the guidelines have been extracted from legal documents identified in the previous chapters of this thesis. They can also be found in the appendix of this thesis. The sub-section Existing Situation in the Current Situation section presents the data collected relating to the issue being approached in that guideline. The only guideline with different headings on its table is the Procurement Process, as it presents the current process instead of requirements and existing situation. The current Procurement Process has been derived from data collected in the interviews with the representatives of the different departments of the local authority.

The Guidelines contain the headings Proposal and Justification. The Proposal presents the standards that should be demanded by the local authority in all the future social housing developments. The Justification presents the reasons for the proposal and how it has been developed only based on the data collection, while others also have the support of research on the approached theme.

Both the Current Situation and the Guidelines present diagrams to illustrate and clarify the issues approached. It is important to highlight that all the diagrams have been designed only to illustrate the issue being considered in that specific section. For instance, the section Guidelines: Area Reserved for Post-Development Community Hub presents a diagram of a housing estate indicating how the area reserved for community hub could be located on the site. The diagram is indicative and does not intend to suggest a layout for the estate.

6.3 Impact

The Guidelines have been developed with the aim of integrating into City Council regulation for the development of social housing; and to assist developers in producing houses that are aligned with the population's aspirations. It is intended to fill gaps and clarify ambiguities in the current local regulation. Thus, they will guide both the City Council, and developers, in relation to how to develop social housing estates.

The guidelines should be applied to all future social housing estates built based on the same scheme as the ones investigated in this study. As this research is focused only on the developments sponsored through the My House My Life programme, funded by Caixa; all the proposals have been developed in convergence not only

with the results from the data collection, but also with this programme's requirements. The Guidelines have been devised to meet the requirements of this programme. The Guidelines will therefore assist the City Council and developers to create homes, when constructing houses, and develop communities, when building future estates.

6.4 Guidelines for the Development of Social Housing in Campo Grande

The following pages present the guidelines for the development of future social housing estates in the city of Campo Grande. This is designed as a detachable section of the thesis, to be used as an independent document.

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Guidelines for the Development of Social Housing in Campo Grande

My House My Life Programme

2017

Content

Foreword

What is this document?

Who is this aimed at?

When is it applicable?

What aspects do the guidelines cover?

Guidelines

Procurement Process

Area Reserved for Pre-Development Community Hubs

Area Reserved for Post-Development Community Hubs

Public Leisure Places

Local Streets – Pedestrian Zones

Local Streets – Traffic Speed

Collector Streets – Pedestrian Zones

Parcels and Plots of Land

Roof Orientation

Front Setbacks

Integration of Inside and the Outside

Internal Layout

Extensions

House Structure

Living Rooms and Kitchens

What is this document?

This document is the result of research that aims to improve the quality of social housing construction in Campo Grande. It presents guidelines for the construction of social housing in the city, which should be incorporated to the local regulations.

Who is this aimed at?

The document is designed to provide guidance for both local authority and developer with regards to the construction of social housing.

When is it applicable?

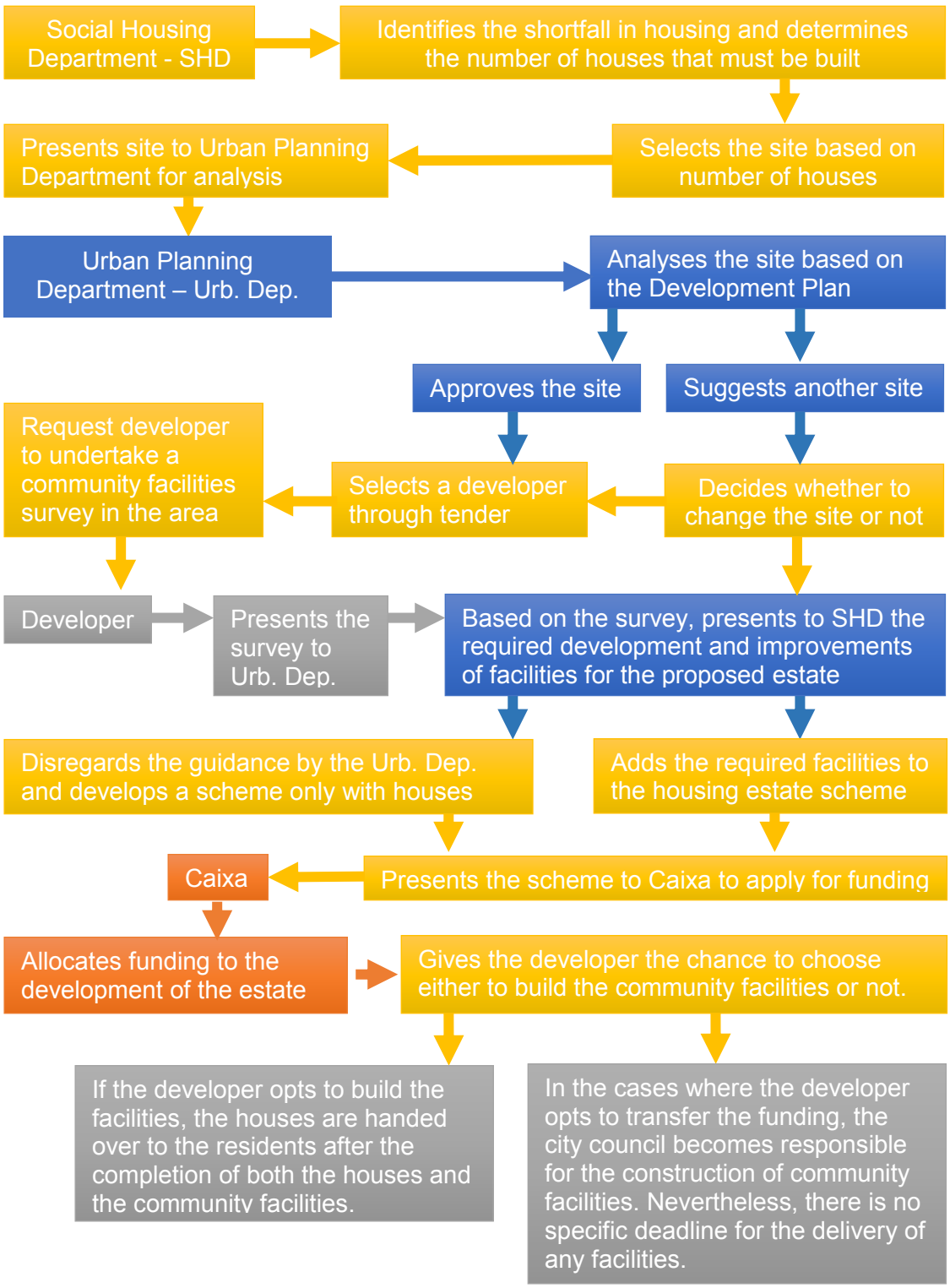
The guidelines are applicable for all the social housing developments that are funded by Caixa through My House My Life programme in the city of Campo Grande.

What aspects do the guidelines cover?

The document is focused on the design of social housing, from the lay out of the housing estates, to the interior of the houses. Thus, the guidelines are recommended to be used from the earliest stages of the design of the estate.

Procurement Process

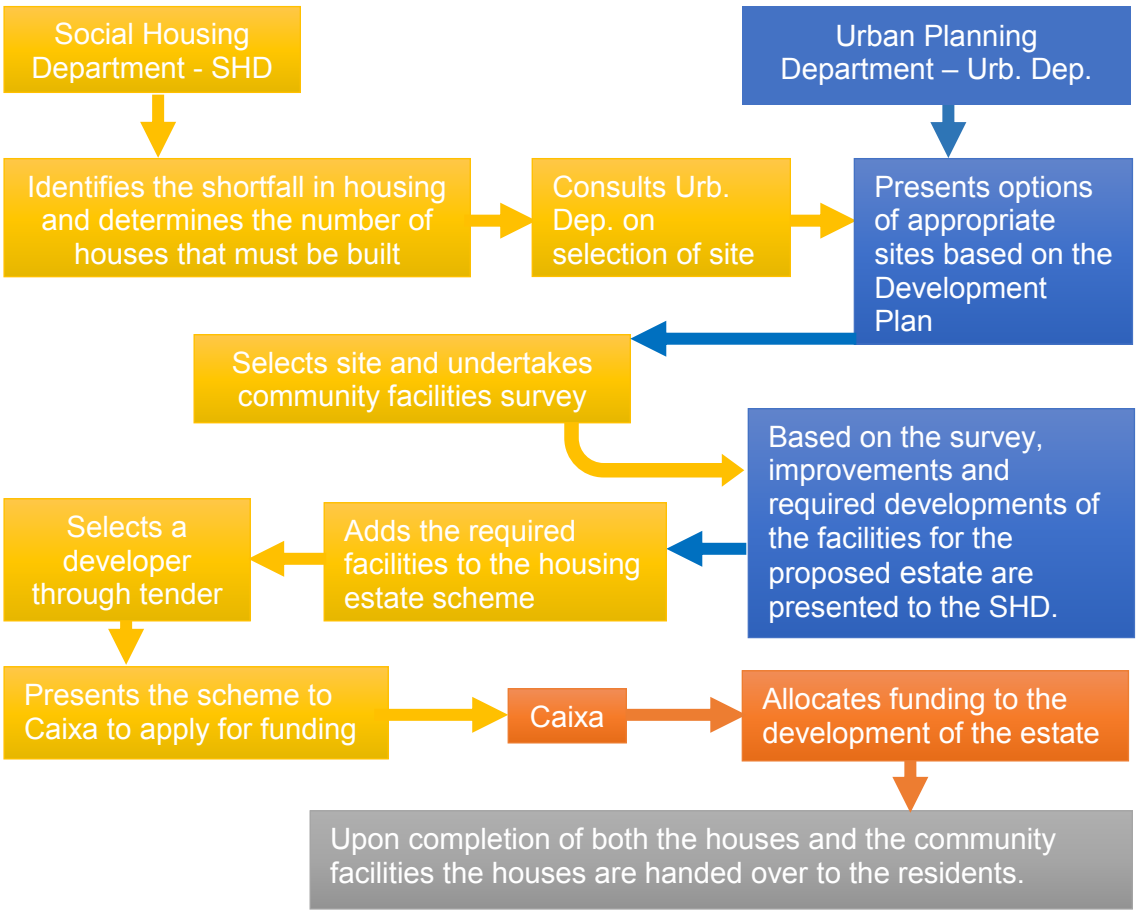
Current Situation



Procurement Process

Guideline 1

PROPOSAL:



JUSTIFICATION:

- Site selection: with the Development Department presenting options of sites, the process can be quicker and with more appropriate selection of sites;
- Community facilities survey: the local authorities should be responsible for the development of the survey, as it would avoid any possible bias on the results;
- SHD should always incorporate all of the required facilities to the scheme, so the developer builds the community facilities before the houses are handed to the residents.

Area Reserved for Pre-Planned Community Hub

Current Situation

REQUIREMENT:

Minimum of 10% of estate's area reserved for Community Hub.

EXISTING SITUATION:

Each of the housing estates has a reserved area for the Community Hub with distinct dimensions - based on estate area, and locations that vary for each estate (see Figure 6-1).

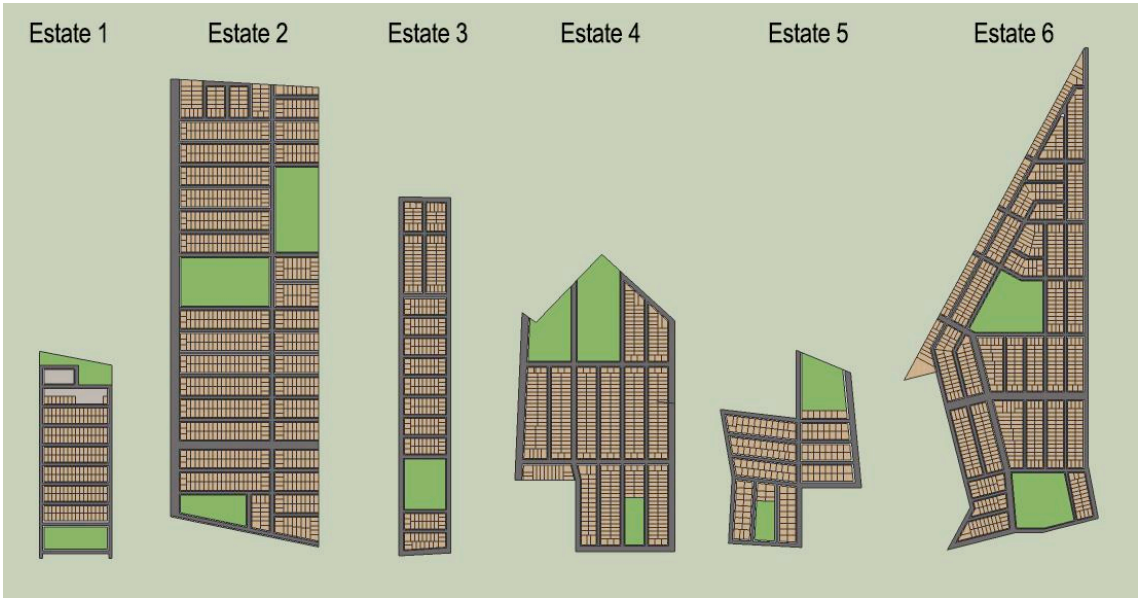


Figure 6-1 – Housing estates investigated, with the green areas being the areas reserved for the Community Hub, and the brown being the plots.

ISSUES TO BE ADDRESSED:

No specific rules for the layout of the area reserved for the Community Hub

Area Reserved For Pre-Planned Community Hub

Guideline 2

PROPOSAL:

Community facilities should be planned based on the facilities survey in advance, i.e. before the development of the housing estates, then the areas reserved for the Community Hub in the estate can be designed based on what is planned to be built there. For example, if it will be a school, then the area to be reserved can be selected and designed to suit. This can be applied to any community facility and determine the locations and proximity of facilities.

JUSTIFICATION:

Proposing an area based on what will be built there can bring more effective utilisation of space. Morerover, even the location of the community facilities can be more effectively planned to suit the residents' needs.

Area Reserved for Post-Development Community Hub

Current Situation

REQUIREMENT:

There are no specific requirements for how these areas are allocated; however, the local authority usually recommends large areas, as it gives them more options for constructing developments such as schools.

EXISTING SITUATION:

Each of the housing estates have the reserved area for community hub concentrated in one to three blocks only (see Figure 6-2);

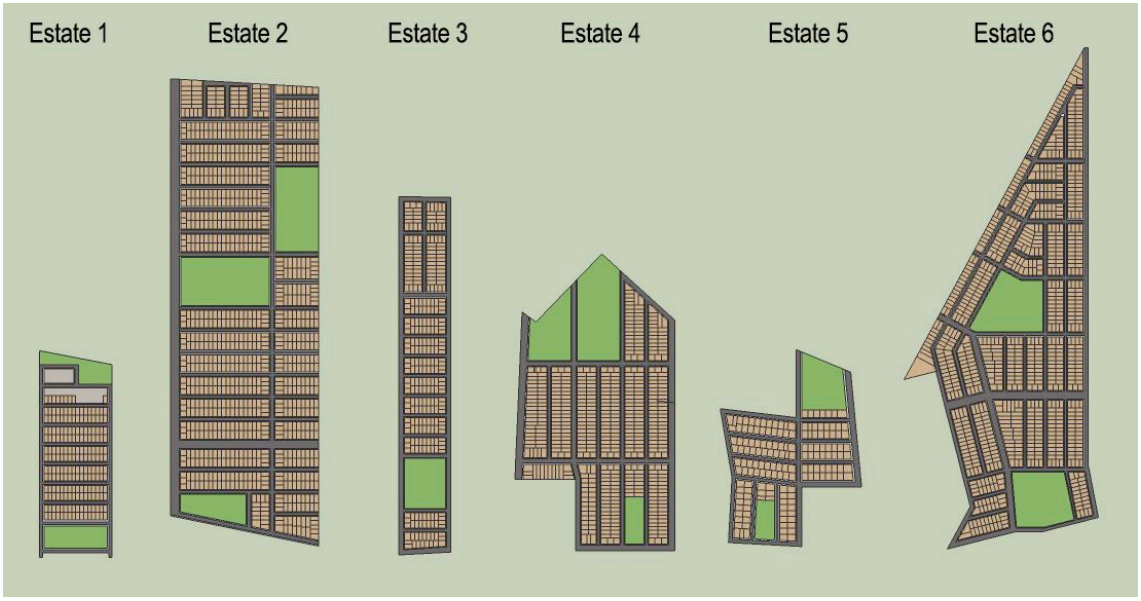


Figure 6-2 – Housing estates investigated, with the green areas being the areas reserved for the city council, and the brown being the plots.

ISSUES TO BE ADDRESSED:

No specific rules for how the area reserved for the city council are allocated within the development.

Area Reserved for Post-Development Community Hub

Guideline 3

PROPOSAL:

Half of the area reserved for community hub **concentrated** in one single area, and the other **half distributed** over the estate (see Figure 6-3).

Figure 6-3 – Indicative model of estate layout demonstrating distribution of area reserved for the city council.

JUSTIFICATION:

It is important to keep a large area for the construction of public community facilities in one area. However, other small open spaces used for public leisure places, distributed over the estate can bring a more fair layout for the residents, as all of them can enjoy the proximity of these areas (see Figure 6-4).

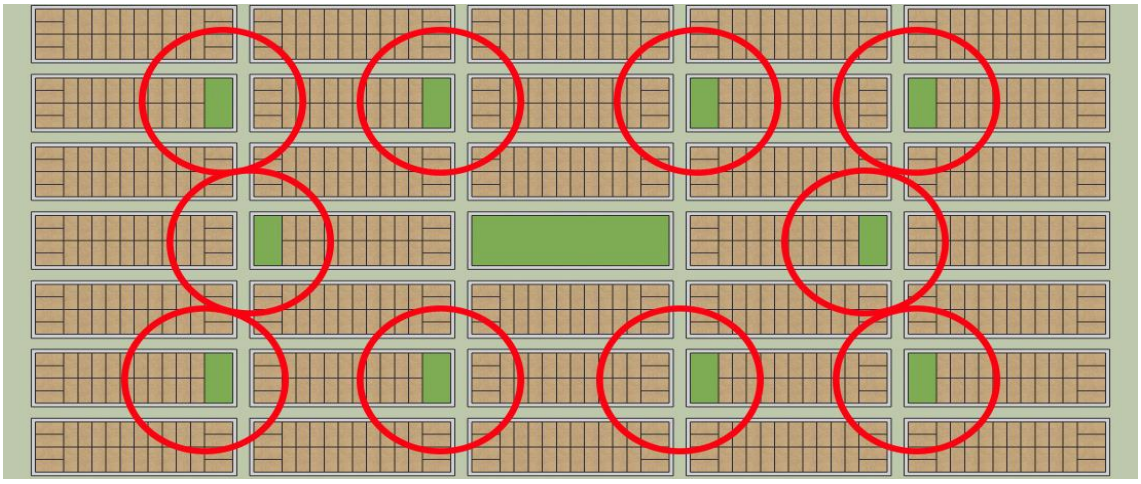


Figure 6-4 – Circles indicating proximity of various plots to public areas.

Public Leisure Places

Current Situation

REQUIREMENT:

There are no specific requirements for the construction of public leisure places in social housing estates.

EXISTING SITUATION:

- None of the housing estates studied have any public leisure place;
- This item has the highest level of dissatisfaction amongst the residents of five out of the six housing estates;
- Residents have complained about lack of safe places for children to play, as they currently play on the street, which is considered dangerous and concerns by the residents.

ISSUES TO BE ADDRESSED:

- Lack of public leisure places and areas for social interaction;
- Lack of safe public areas for children to play.

Public Leisure Places

Guideline 4

PROPOSAL:

- With half of the area reserved for the city council being spread over the housing estates, these **areas** could be **used as public leisure places** for the residents;
- They could be developed at a low cost, being composed of benches and turfed area (see Figure 6-5).

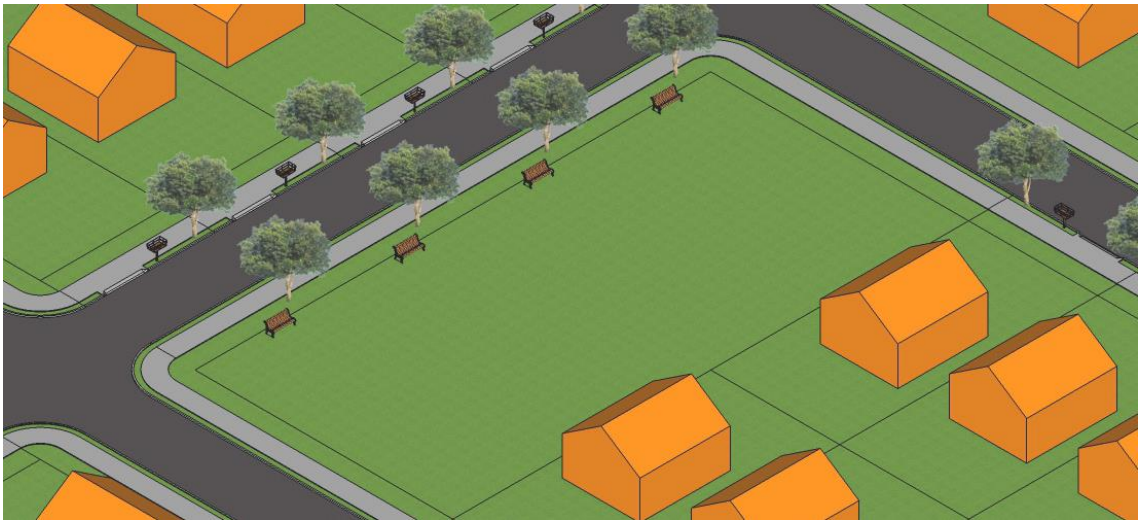


Figure 6-5 – Public leisure places in small areas.

JUSTIFICATION:

These places would allow children to play in areas near their house and under the supervision of their parents. Moreover, it could encourage more social interaction amongst neighbours (see Figure 6-6).

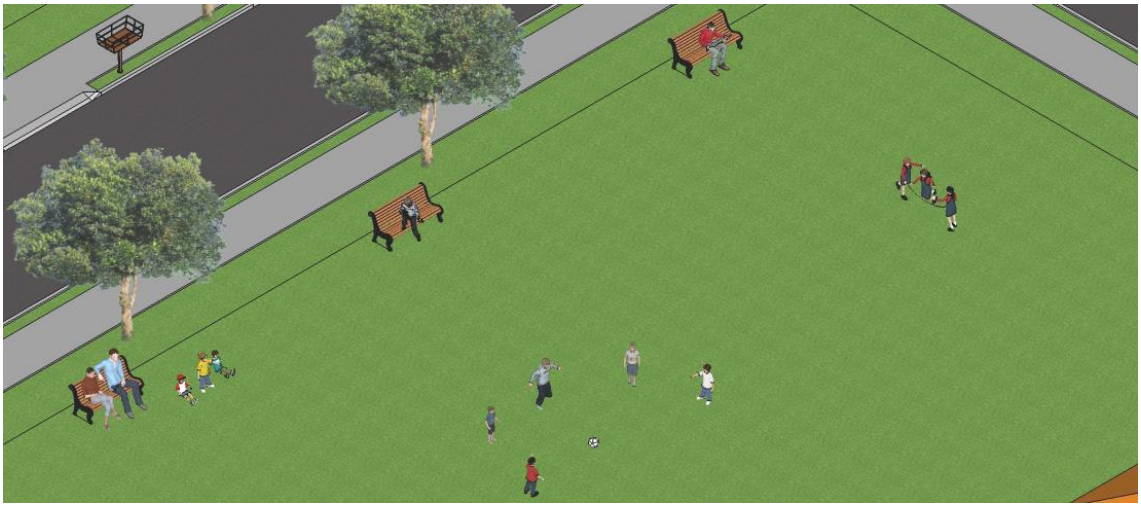


Figure 6-6 – Adults and children using public leisure places near their houses.

Local Streets – Pedestrian Zones

Current Situation

REQUIREMENTS:

- Minimum width of street: 7m
- Minimum width of footpath: 1.5m
- Minimum roadside width of verge for household bin and planted area: 0.5m
- Minimum width of pedestrian zone; including footpath, roadside verge, and boundary verge: 2.5m

EXISTING SITUATION:

All the estates followed the minimum requirements, as shown in Figure 6-7.

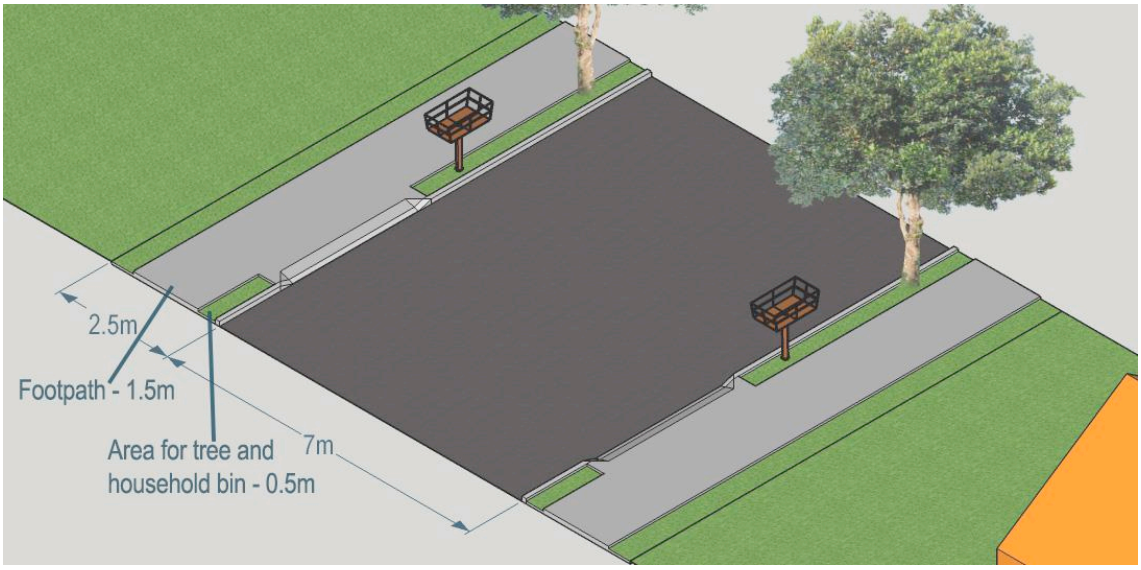


Figure 6-7 – Minimum dimensions of local streets and the associated pedestrian zones.

ISSUES TO BE ADDRESSED:

Narrow pedestrian zones on local streets.

Local Streets – Pedestrian Zones

Guideline 5

PROPOSAL:

- Minimum **width of street: 5m** (see Figure 6-8)
- Minimum **width of pedestrian zones** – footpath and verges: **3.5m**

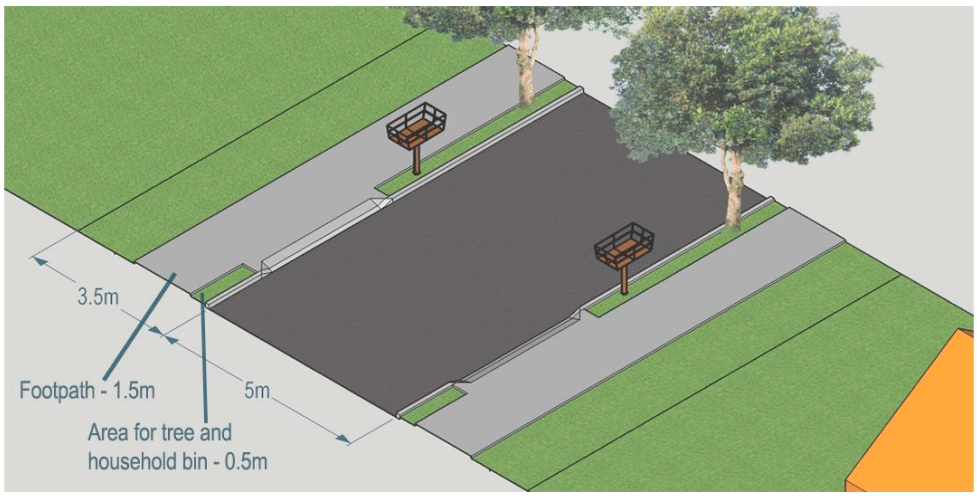


Figure 6-8 – Proposal of wider pedestrian zones and narrower streets.

JUSTIFICATION:

By decreasing the width of the streets, it is possible to widen the verges without the necessity of adding extra area to the development. The data collection has shown that there is a habit amongst the residents to use the pavements for sitting and socialising, which brings the needs for wider boundary verges, avoiding residents sitting on the footpath, which obstructs the passage of pedestrians (see Figure 6-9). Studies suggest 2.5m as the ideal width per lane for low-speed roads.

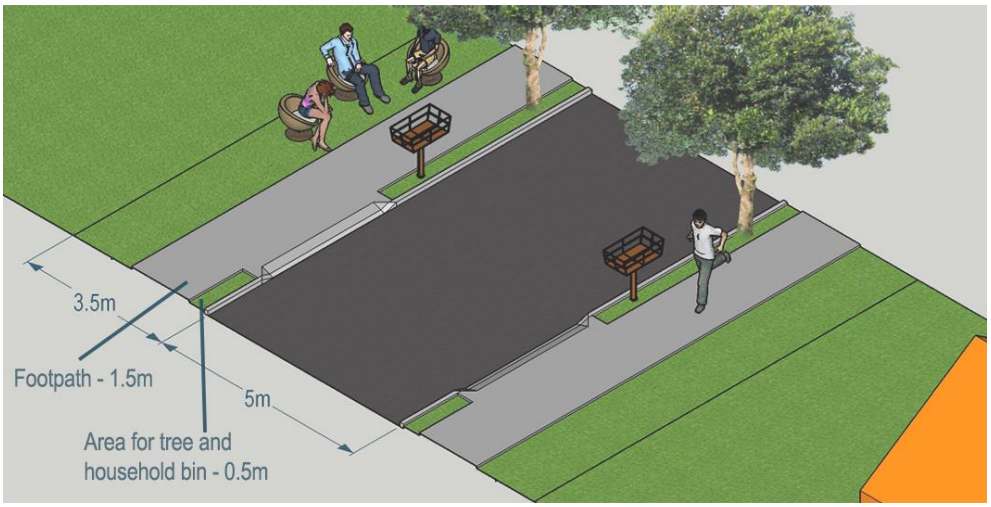


Figure 6-9 – Residents making use of wider verges.

Local Streets – Traffic Speed

Current Situation

REQUIREMENTS:

The speed limit for local streets can vary. However, the typical speed limits for these streets in Brazil, which applies to every local street that has no signs, is 30km/h.

EXISTING SITUATION:

As children commonly play on local streets in the Brazilian social housing estates, residents are concerned with their children's safety due to the traffic on these streets. Although the speed limit is usually low, residents state that the speed limit is commonly disregarded by drivers.

ISSUES TO BE ADDRESSED:

Resident's perception of risk on streets where children play.

Local Streets - Traffic Speed

Guideline 6

PROPOSAL:

Traffic calming measures near the access of the local streets (see Figure 6-10).

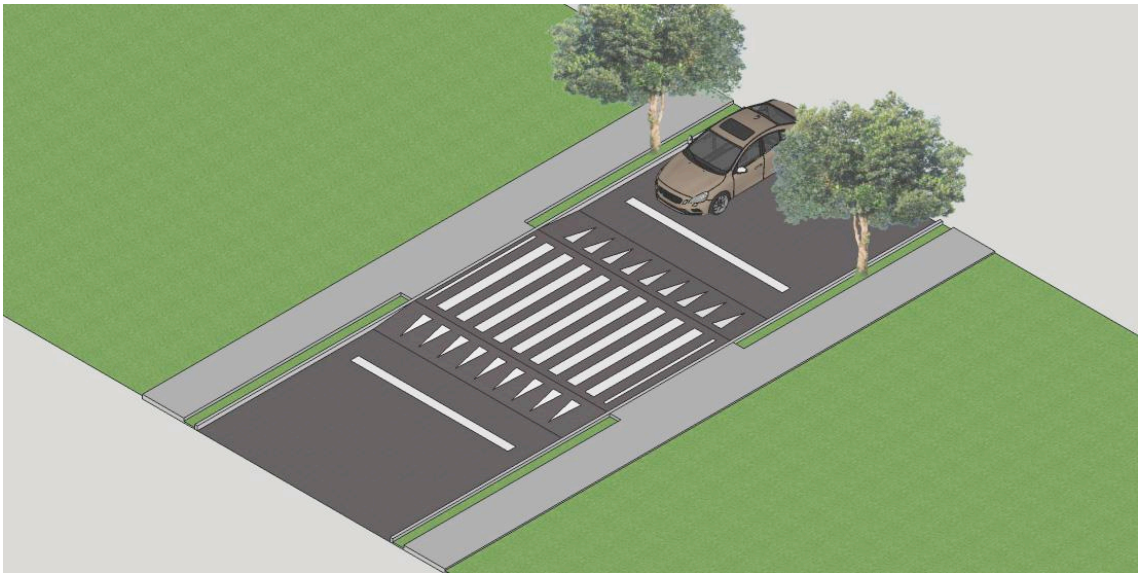


Figure 6-10 – Traffic calming measures on local streets.

JUSTIFICATION:

This method ensures that every vehicle will have to lower their speed before accessing any local street in the estate, along with making the driver aware that they are entering a street with a reducted speed limit.

Collector Streets – Pedestrian Zones

Current Situation

REQUIREMENTS:

- Minimum width of street: 12m
- Minimum width of footpath: 1.5m
- Minimum roadside verge width for household bin and planted area: 0.5m
- Minimum width of pedestrian zone; including footpath, roadside verge, and boundary verge: 3m

EXISTING SITUATION:

All the estates followed the minimum requirement, as shown in Figure 6-11.

Figure 6-11 – Minimum dimensions of collector streets and their verged footpaths.

ISSUES TO BE ADDRESSED:

Narrow pedestrian zones on collector streets.

Collector Streets – Pedestrian Zones

Guideline 7

PROPOSAL:

- Minimum **width of street: 11m** (see Figure 6-12)
- Minimum **width of pedestrian zones** – including footpath and verges: **3.5m**

Figure 6-12 – Proposal of wider pedestrian zone and narrower streets.

JUSTIFICATION:

The data collection has shown the necessity of widenig the verges, which would be possible by decreasing the width of the road. Research points to 3.5m per lane as the ideal width for collector streets, leaving 2.5m width for parking spaces.

Parcels and Plots

Current Situation

REQUIREMENTS:

- Minimum parcel area: 200m^2
- Minimum frontage of parcel: 10m
- Minimum plot area: 75m^2

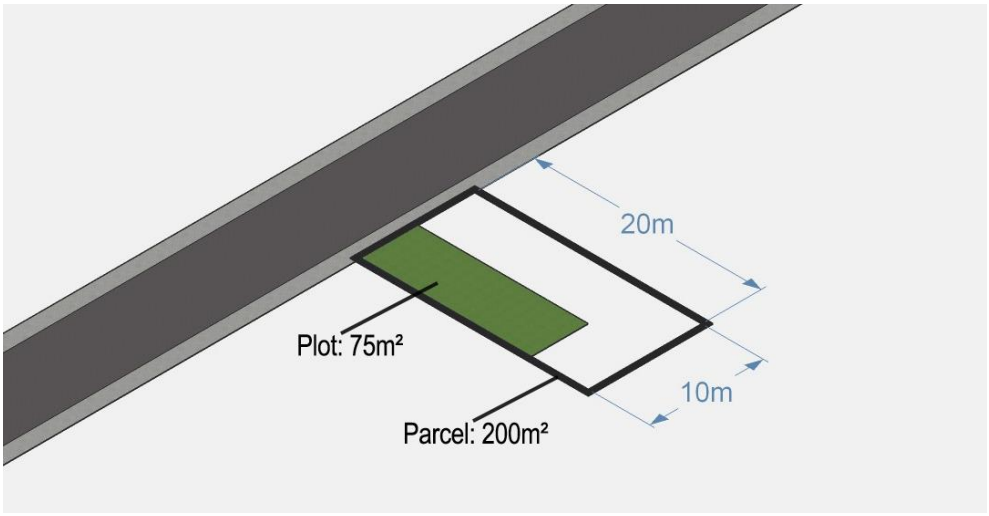


Figure 6-13 – Minimum dimensions of parcels and plots.

EXISTING SITUATION:

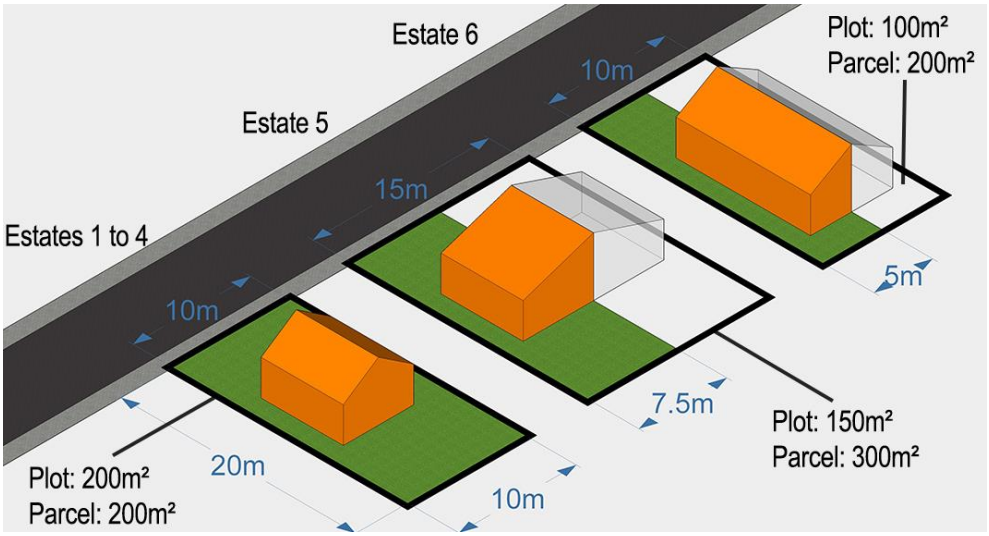


Figure 6-14 – Dimensions of plots and parcels in the estates investigated.

ISSUES TO BE ADDRESSED:

Insufficient plot space for additions and extensions in the smaller plots.

Plots and Parcels

Guideline 8

PROPOSAL:

- Minimum **plot and parcel area**: **200m²** (see Figure 6-15)
- Minimum **frontage** of parcel and plot: **10m**

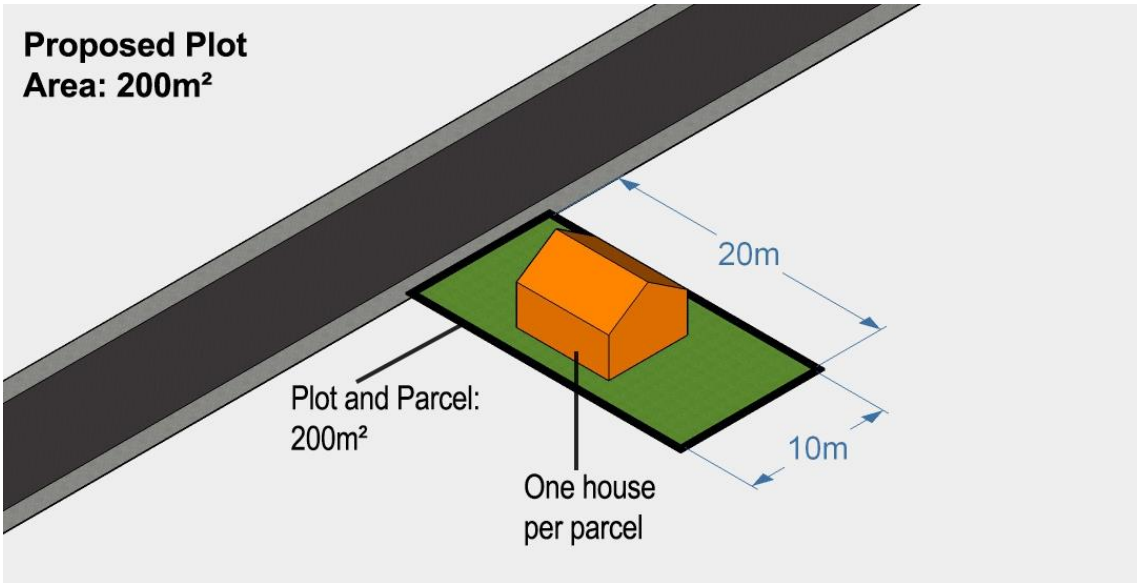


Figure 6-15 – Proposed minimum dimensions of plot and parcel.

JUSTIFICATION:

Adding the most common extensions to the houses, i.e. laundry, kitchen extension, extra bedroom, and front veranda, the built area of the house is approximately 100m², representing 50% of a 200m² plot, which is the maximum development permitted on a plot (see Figure 6-16).

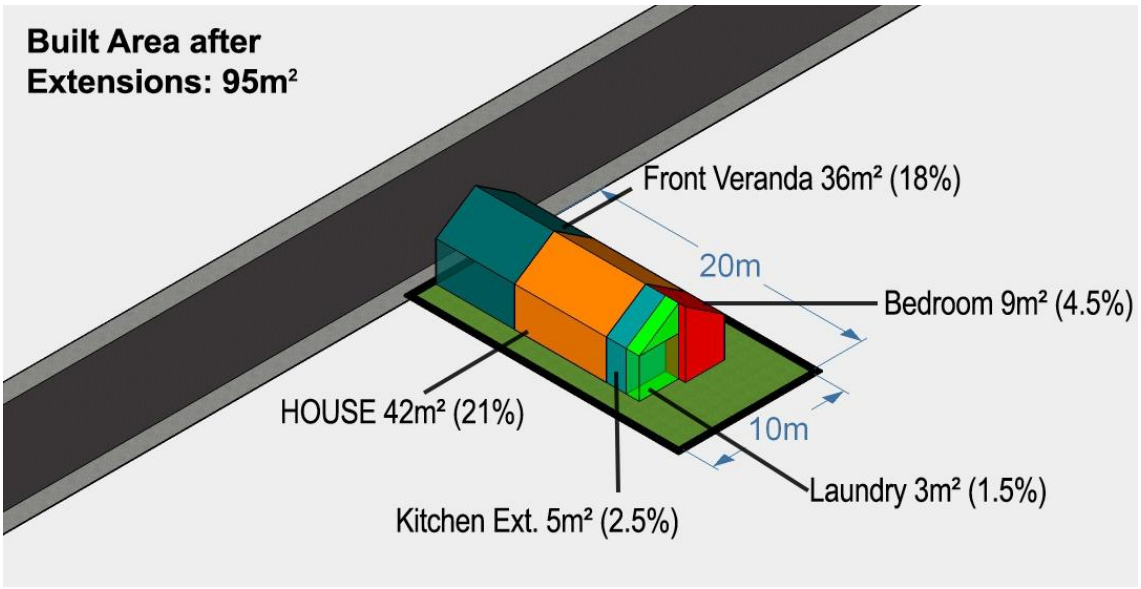


Figure 6-16 – Justification for the proposed minimum dimensions of plot and parcel.

Roof Orientation

Current Situation

REQUIREMENTS:

There are no requirements regarding the roof orientation on the houses.

EXISTING SITUATION:

Four estates have their houses with the roof pitching to the sides, while two estates have houses with roof pitching to the front and to the back (see Figure 6-17).

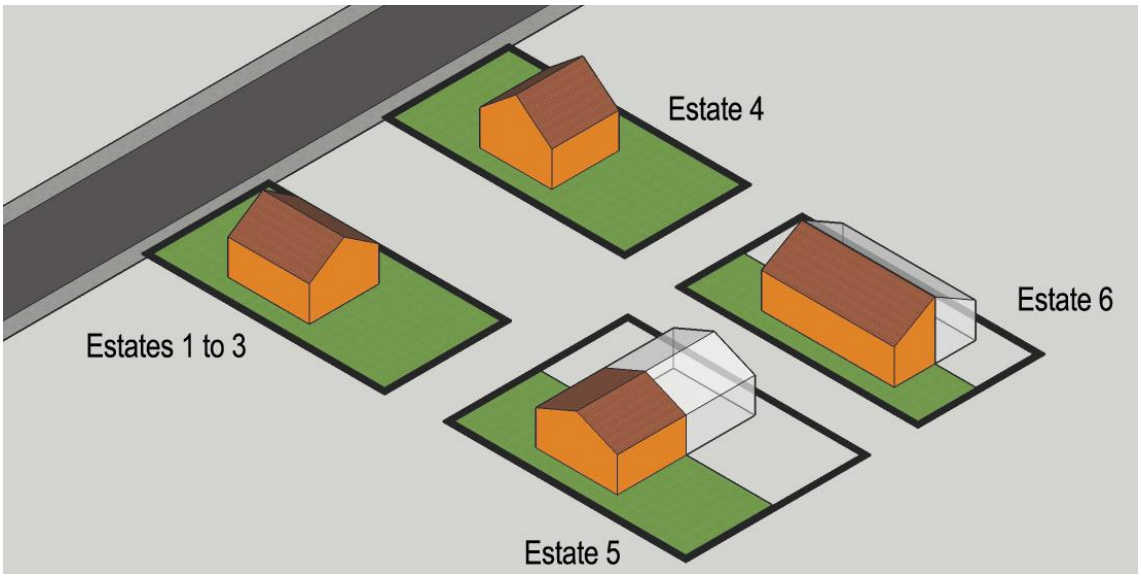


Figure 6-17 – Roof orientation of the houses in the six estates.

ISSUES TO BE ADDRESSED:

Houses with roofs pitching to the front and to the back have less flexibility for additions and extensions.

Roof Orientation

Guideline 9

PROPOSAL:

Roof **pitches to the sides** of the houses (see Figure 6-18).

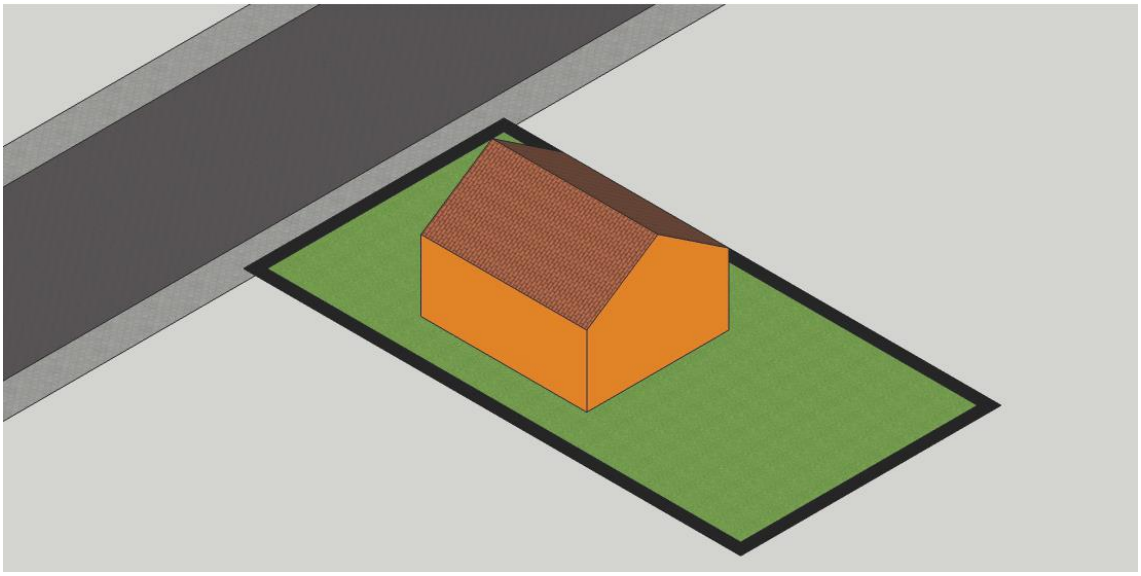


Figure 6-18 – Sample of roof pitching to the sides of the plot.

JUSTIFICATION:

The roof pitching to the sides brings more flexibility to the house for expansions (see Figure 6-19).

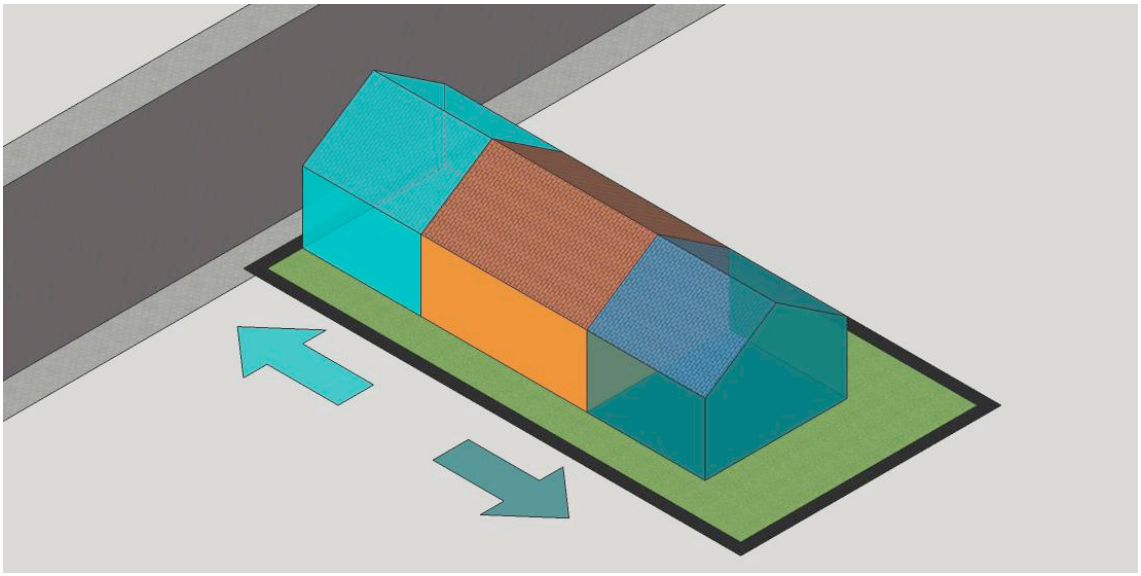


Figure 6-19 – Diagrams showing how the pitch of the roof can influence the flexibility for addition of extra spaces to the house.

Front Setback

Current Situation

REQUIREMENTS:

There are no requirements for front setbacks for one-storey houses.

EXISTING SITUATION:

Four estates have houses with 5m front setback; another estate has houses with front setback measuring 5.5m; and another estate with 6m front setbacks (see Figure 6-20).

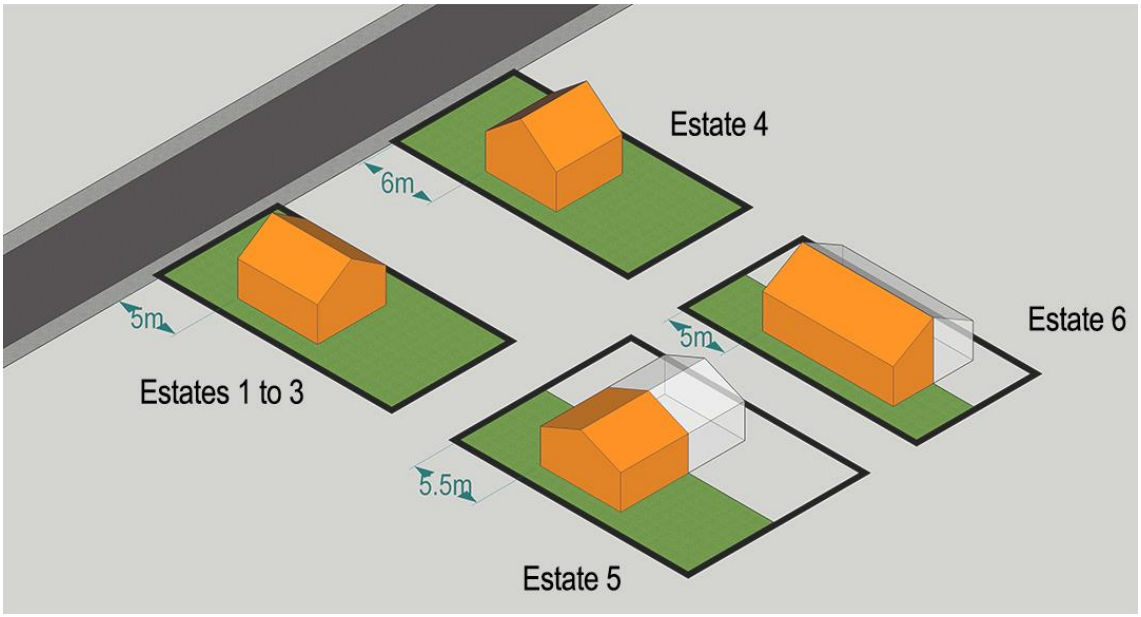


Figure 6-20 – Dimensions of front setbacks in the estates investigated.

ISSUES TO BE ADDRESSED:

Without a specific requirement for the front setbacks, the developers are free to choose what they consider the most convenient option, which might not always meet the residents' needs.

Front Setback

Guideline 10

PROPOSAL:

Minimum **front setback** of **5m** (see Figure 6-21).

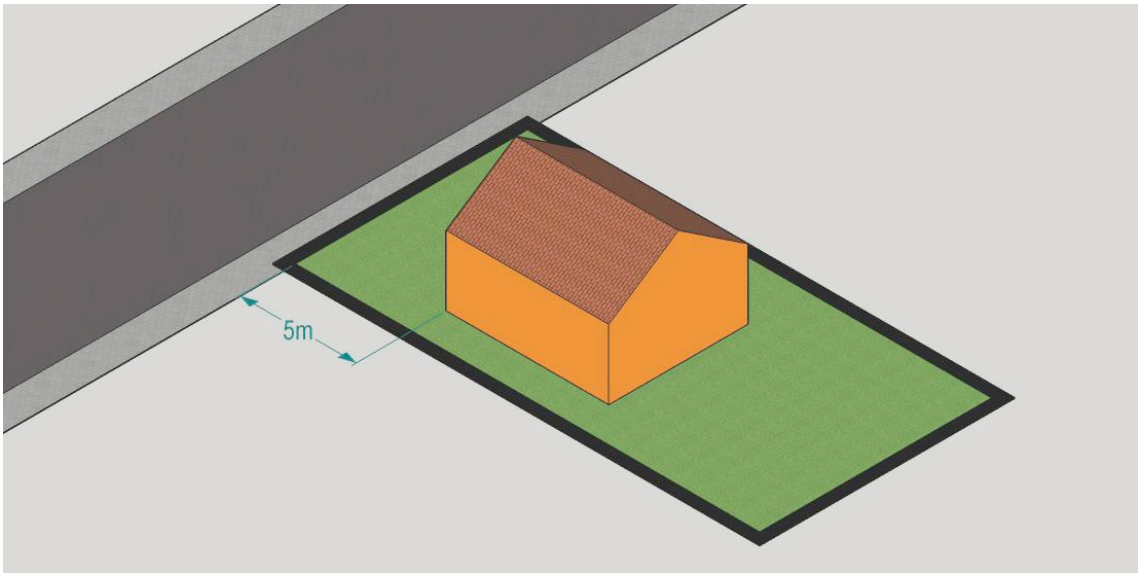


Figure 6-21 – Front setback of 5m.

JUSTIFICATION:

The residents commonly build front verandas on their houses to use as a garage and as a place for leisure as social activities. 5 metres would be sufficient for car parks and construction of boundary walls (see Figure 6-22).

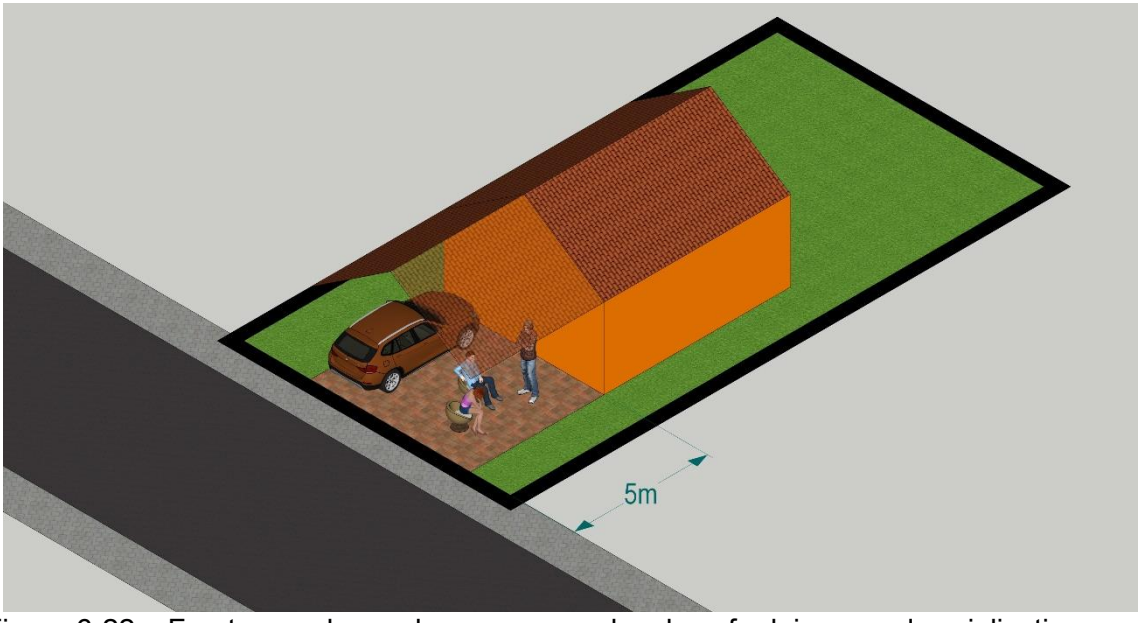


Figure 6-22 – Front veranda used as garage and a place for leisure and socialisation.

Inside and Outside Integration

Current Situation

REQUIREMENTS:

There are no requirements for this subject.

EXISTING SITUATION:

Five of the six housing estates have house with their main doors facing the street, while one of the houses has its main entrance through the side of the house (see Figure 6-23). All of the houses have a 0.80m wide front door.

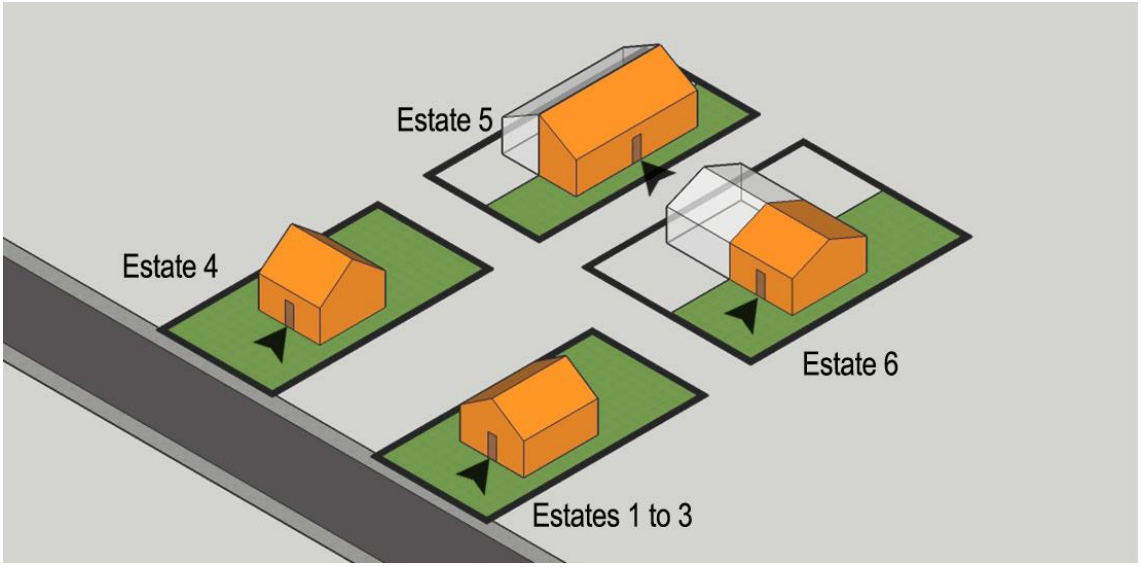


Figure 6-23 – Diagram showing the main door of the houses.

ISSUES TO BE ADDRESSED:

Lack of integration between the inside and the outside of the houses.

Inside and Outside Integration

Guideline 11

PROPOSAL:

Wider opening on the main facade of the house (see Figure 6-24).

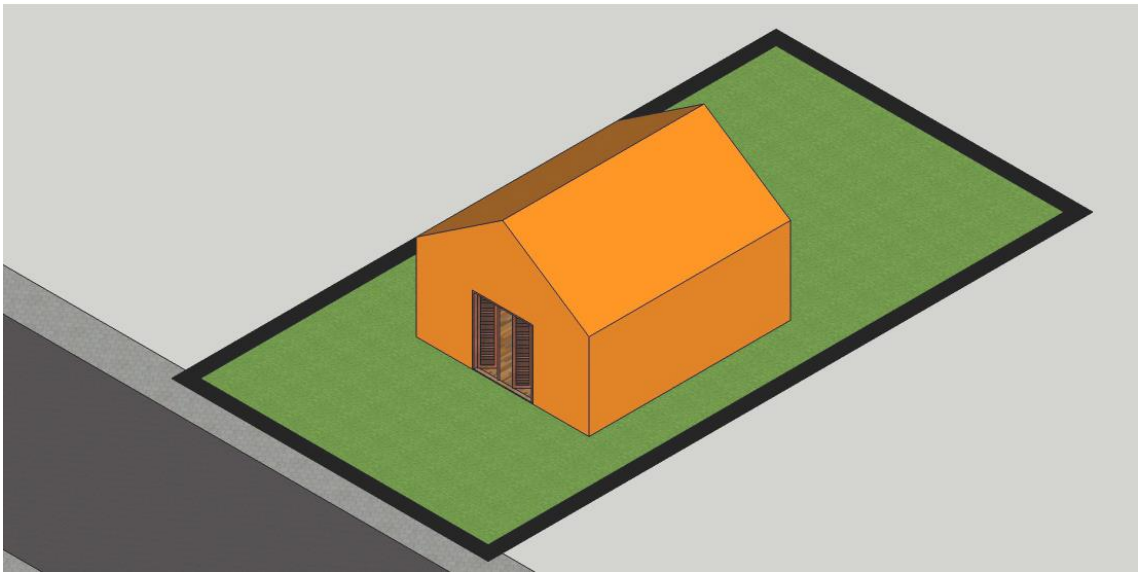


Figure 6-24 – Sample of model of wide opening in the façade.

JUSTIFICATION:

Wider openings at the main access of the house, between the living room and the front setback, can help to integrate the inside and the outside of the house. Folding doors, or solid double doors, could be one of the elements used for this purpose, as it helps to integrate and can be easily closed when necessary (see Figure 6-25).

Figure 6-25 – Sample of model of wide openings as the main entrance of the house.

Extension - Internal Layout

Current Situation

REQUIREMENTS:

There are no specific requirements for the internal layouts of the houses in regards to flexibility for extensions.

EXISTING SITUATION:

Figure 6-26 – Internal layout of houses in the estates investigated, with arrows showing the front door.

ISSUES TO BE ADDRESSED:

Houses are not required to present a flexible layout for additions and extensions.

Extension - Internal Layout

Guideline 12

PROPOSAL:

The design of the houses should be required to prove capability for the future development of a kitchen extension and addition of one extra bedroom.

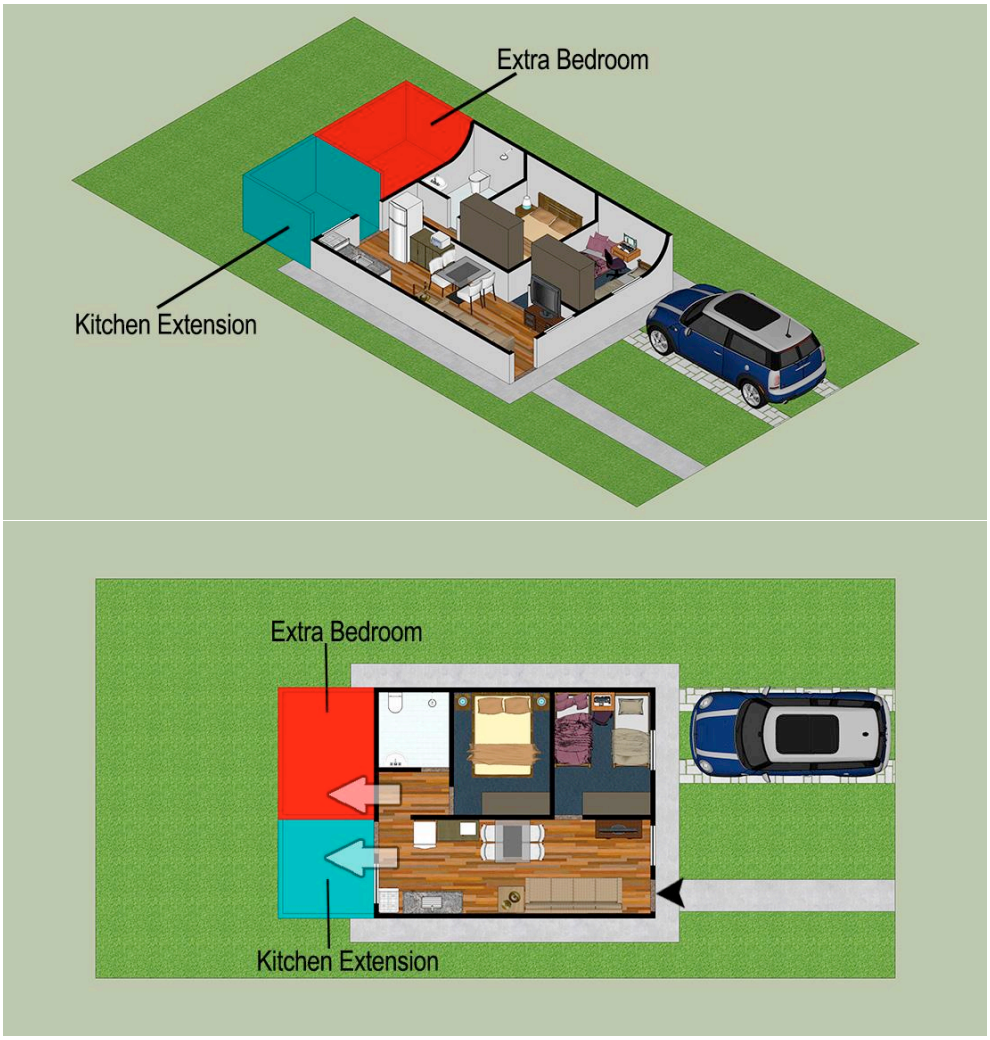


Figure 6-27 – Sample model of an internal layout of a house with capability for the construction of an extra bedroom and kitchen extension.

JUSTIFICATION:

The data collection has shown that an extension to the kitchen and construction of a third bedroom are the main alterations made by the residents to their houses. Therefore, the houses should be designed in a form that facilitates these alterations.

Additions and Extensions

Current situation

REQUIREMENT:

As previously presented, there are no requirements, nor guidelines, for additions and extensions in the house.

EXISTING SITUATION:

The residents are entirely responsible for the design and development of the extensions and additions in their house.

ISSUES TO BE ADDRESSED:

Lack of guidance for residents for how to develop additions and extensions to their houses.

Additions and Extensions

Guideline 13

PROPOSAL:

The developer should make freely available to residents, **floor plans showing typical extensions** and details required for construction (see Figure 6-28).

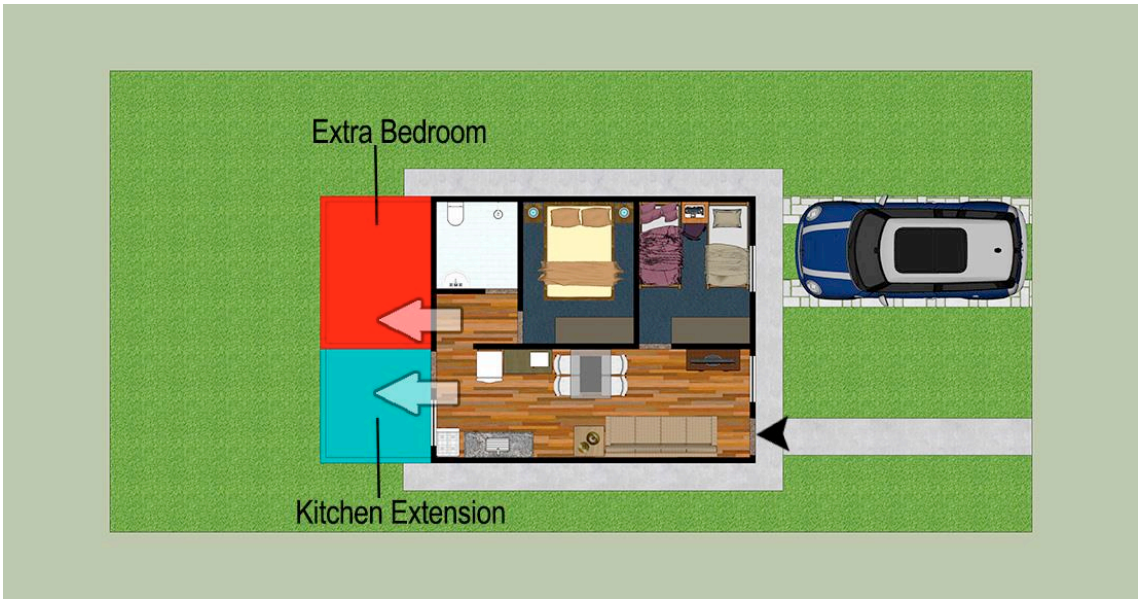


Figure 6-28 – Sample model of an internal layout of a house with possibility for the construction of an extra bedroom and kitchen extension.

JUSTIFICATION:

This floor plan would facilitate the extesions and additions developed by the residents, especially for the extension of the kitchen and addition of one bedroom.

Flexibility for Extension – House Structure

Current Situation

REQUIREMENTS:

There are no specific requirements for the structure of the house in regards to flexibility for additions and extensions.

EXISTING SITUATION:

Most houses in the social housing estates investigated were built with block work on both internal and external walls (see Figure 6-29), which makes it more difficult for alterations in the house, as it is fully load bearing.

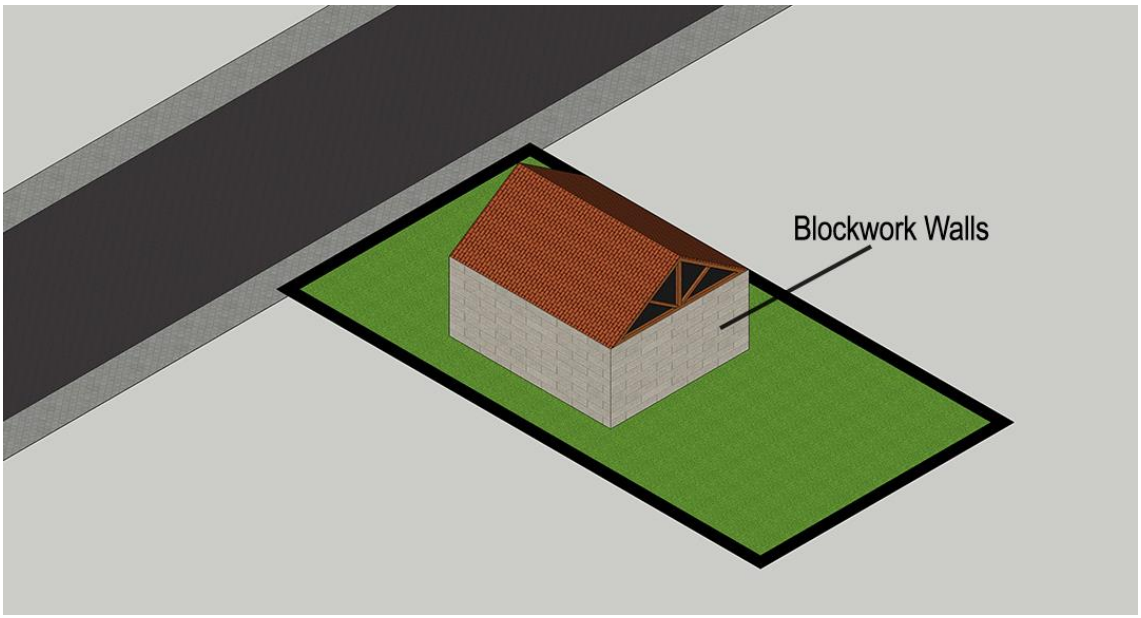


Figure 6-29 – Sample model of a house with load bearing wall as in the houses investigated.

ISSUES TO BE ADDRESSED:

Houses are not required to present a flexible structure for additions and extensions.

Flexibility for Extension – House Structure

Guideline 14

PROPOSAL:

Structural framework, such as steel and/or concrete, with infill walls (see Figure 6-30).

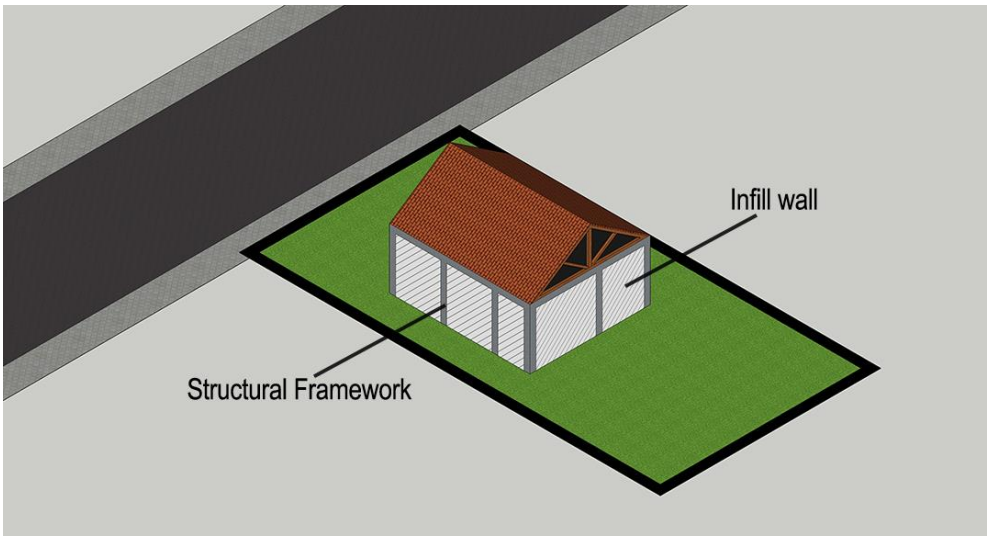


Figure 6-30 – Sample model of a house with structural framework and infill walls.

JUSTIFICATION:

With a structural framework, the houses would give the residents the possibility of demolishing infill walls without risking causing any damage to the structure of the property, making the house safer and easier for additions and extensions (see Figure 6-31).

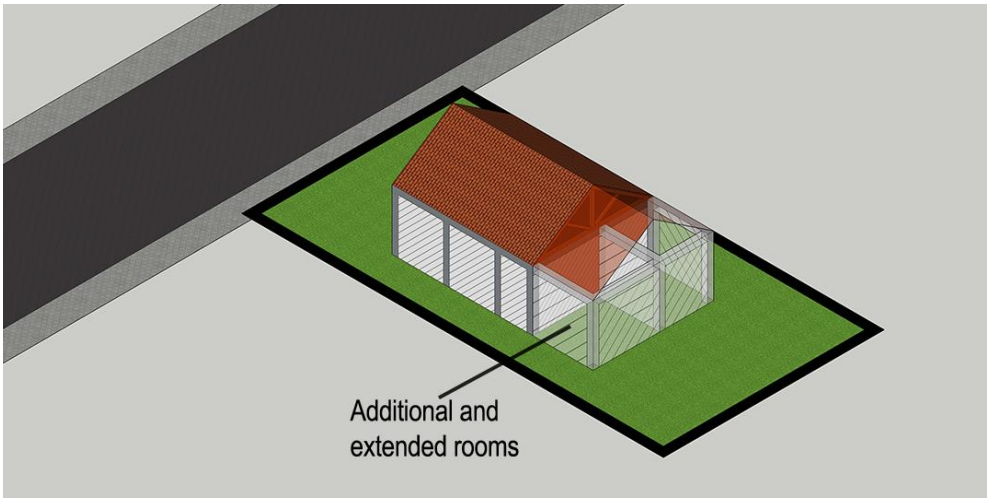


Figure 6-31 – Indicative possible addition and extension to structural framework and infill wall houses.

Living Room and Kitchen

Current Situation

REQUIREMENT:

Caixa has specific requirements for floor areas of each room of the house, but there are no requirements regarding to the internal layouts of the house.

EXISTING SITUATION (DATA COLLECTION):

Although all the housing estates have houses with kitchen and living room integrated, the five oldest housing estates (Estates 1 to 5) have each of these rooms well divided, while the most recently built estate (Estate 6) have houses in which the space for the kitchen and the living room are not well defined, as highlighted on the image below (see Figure 6-32).

Figure 6-32 – Floor plans of the housing estates, highlighting the living rooms and the kitchen. The blue outline represents the space for the living room, while the red represents the space for the kitchen.

ISSUES TO BE ADDRESSED:

Lack of requirements for the layout of the living room and the kitchen, as highlighted on Estate 6.

Living Room and Kitchen

Guideline 15

PROPOSAL:

The **living room and** the **kitchen** should **have their own defined spaces** and limits. That should also apply for the places where these rooms are integrated. This division would occur through a distinction of floor areas between these spaces, i.e. the floor area of the living room should not coincide with the floor area of the kitchen, such as in the houses of the five oldest estates investigated (see Figure 6-33).

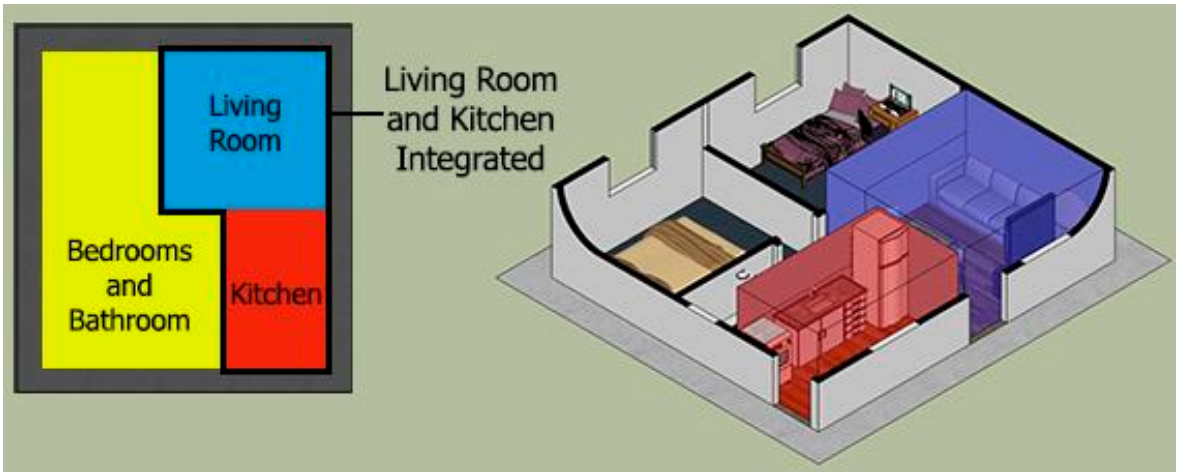


Figure 6-33 – Sample diagram of open plan kitchen and living areas, but each with their own defined spaces, where the blue area represents the living room, and the red area represents the kitchen.

JUSTIFICATION:

Although the integration between the living room and the kitchen are well received by the residents in the social housing estates in Campo Grande, the data collection has pointed to dissasfaction of residents with the layout of the living room in the most recently built housing estate. The residents see the layout of houses which amalgate the living room and kitchen in the same space as a negative point.

6.5 Evaluation of the Guidelines

The data collection has formalised the feedback from the residents into a reliable source of their needs, and expectations of the service that is being delivered by the local authority; this feedback has allowed the guidelines to be formed based on the performance of the service delivered by the local authority. With this, the guidelines need to be evaluated with regards to feasibility, by the local authority in their capacity to bridge the gap between the service currently provided and the improved service that is necessary to fulfil the needs, and expectations of the residents.

The guidelines were sent for review and evaluation by representatives of the three departments from the local authority that had been interviewed during the data collection, i.e.

- Social Housing Department - Emha
- Urban Planning Department – Planurb
- Building Regulation Department – Semadur.

The evaluation was carried out through a questionnaire (see Appendix C) sent to the head of each of the three departments, together with the Guidelines.

6.5.1 Analysis of the Evaluation of the Guidelines

The analysis of the evaluation of each guideline will be presented individually, showing how each department responded to them.

Guideline 1 - Procurement Process

Although all three departments classified the proposal for the procurement process as effective and easy to understand, Social Housing and Urban Planning departments suggested that the role of the Building Regulation Department should also be presented on the diagram for the Procurement Process. This has been incorporated in the diagram (Figure 6-34) below:

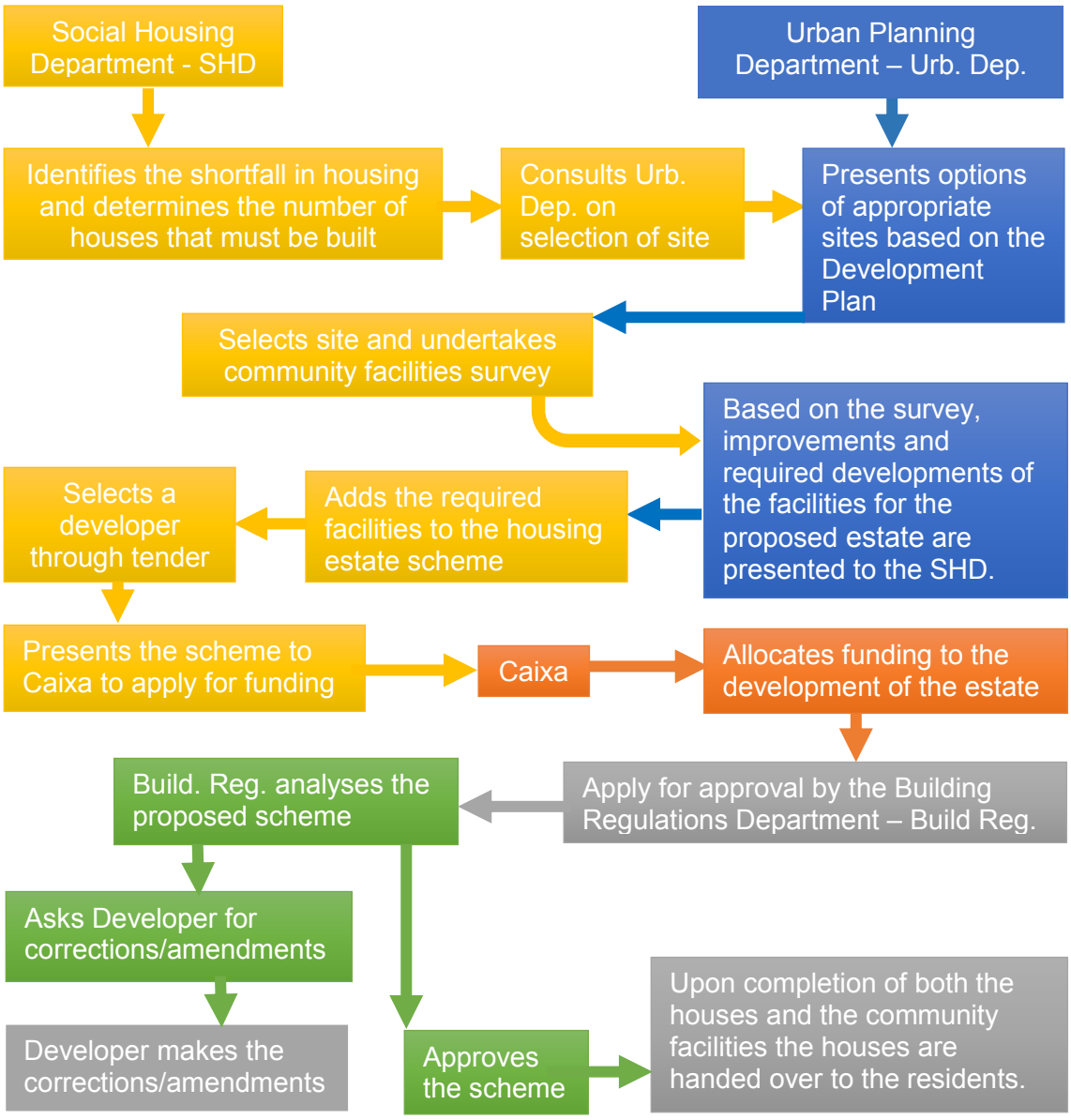


Figure 6-34 – Diagram for Guideline 1 - Procurement Process, with the addition of the Building Regulation Department, as shown in green.

Guideline 2 - Area Reserved for Pre-Planned Community Hub

This guideline is the main proposal to overcome the issues related to lack of community facilities in the social housing estates. Although all three departments demonstrated positive views to this proposal, the Social Housing and the Urban Planning departments expressed concern about the difficulty in predicting demand for community facilities in the future. This concern is recognised as another guideline (Guideline 3) has been created for those cases. It proposes that secure areas are reserved in the housing estates for construction of future community facilities, in case the demand increases over the years.

Guideline 3 - Area Reserved for Post-Development Community Hub

All three departments considered this proposal as effective, feasible, and easy to incorporate, and they responded that the form of the guideline as presented, is easy to understand.

Guideline 4 - Public Leisure Places

While the Building Regulation Department has demonstrated confidence with this proposal, the Social Housing and Urban Planning Departments added comments to this guideline, questioning the risks involving illegal occupation of those plots, i.e. illegal self-built houses. However, as argued in the research presented in this thesis, smaller plots located near the residents are more commonly used, and are more likely for the residents to develop a sentiment of attachment and ownership. Therefore, it would make them safer and less susceptible to illegal occupation.

Guideline 5 - Local Street – Pedestrian Zones

Although all three departments agree with the proposed wider pavements, the Social Housing Department questioned the provision of narrower streets. However, this proposal was based on numerous studies that have presented advantages of narrowing the streets, resulting in safer spaces. Furthermore, it would decrease the cost of urban infrastructure in the development.

Guidelines 5 and 6

The guidelines for 'Local Street – Traffic Calming' and 'Collector Street – Pedestrian Zones' were seen by all three departments as effective, easy to understand, feasible, and easy to incorporate.

Guidelines 7 - Plots and Parcels

While the Building Regulation and Urban Planning Departments expressed satisfaction with this guideline, the Social Housing Department observed that it might imply higher cost, as the proposal requires more land per house. However, this research has evidenced that the current minimum sizes do not meet the needs of residents. Therefore, the budget should be adapted to the minimum standards required for the people. It is crucial for the local authority to recognise the need to increase the minimum area of the parcels, and implement this change to the design of social housing estates.

Guidelines 9 to 13

All three departments demonstrated confidence with the guidelines for ‘Roof Orientation’, ‘Front Setback’, ‘Inside and Outside Integration’, ‘Extension – Internal Layout’, and ‘Additions and Alterations’, and they believe these guidelines could bring benefits to social housing developments in the city.

Guideline 14 - Flexibility for Extension

The three departments approved this guideline.

Guideline 15 - Living Room and Kitchen

The last proposed guideline was considered by all three departments as effective, easy to understand, feasible, and easy to incorporate.

6.6 Guidelines for Residents

The guidelines presented in this work offer guidance on the strategies that should be adopted in the development of social housing prior to the delivery of the houses for the residents; such as procurement process and lay out of the estates and design of the houses. For that reason, these guidelines are addressed only to the local authority and developers, since the residents are not directly involved in the initial process of social housing development. However, it is important to emphasise that these guidelines have been developed based on the residents' perspectives and needs, which brings participation of the residents into the initial stages of the development of the social housing estates.

Nevertheless, once the design of a new social housing development is established, the developer should be able to provide the residents with guidelines on the possible alterations and extensions to the house, particularly an extension of the kitchen and the addition of an extra bedroom. Although Caixa currently requires the developers to offer a guide booklet to the residents with technical information about the house, it is important to add guidance on the flexibility of the house for alterations and additions to be developed by the residents.

The impossibility of offering guidelines for residents alongside the guidelines for local authority and developers is due to the variety in designs for the houses and housing estates from one development to another. The final design is usually agreed between the local authority and the developers. Although the guidelines proposed in this work will contribute to an improvement in the design of the houses, the decision on the final design will also be based on aspects such as the budget, the area, and the number of residents. Therefore, the guidelines for the residents should be developed after establishing the design of the houses within the social housing development.

6.7 Building Communities and Creating Homes

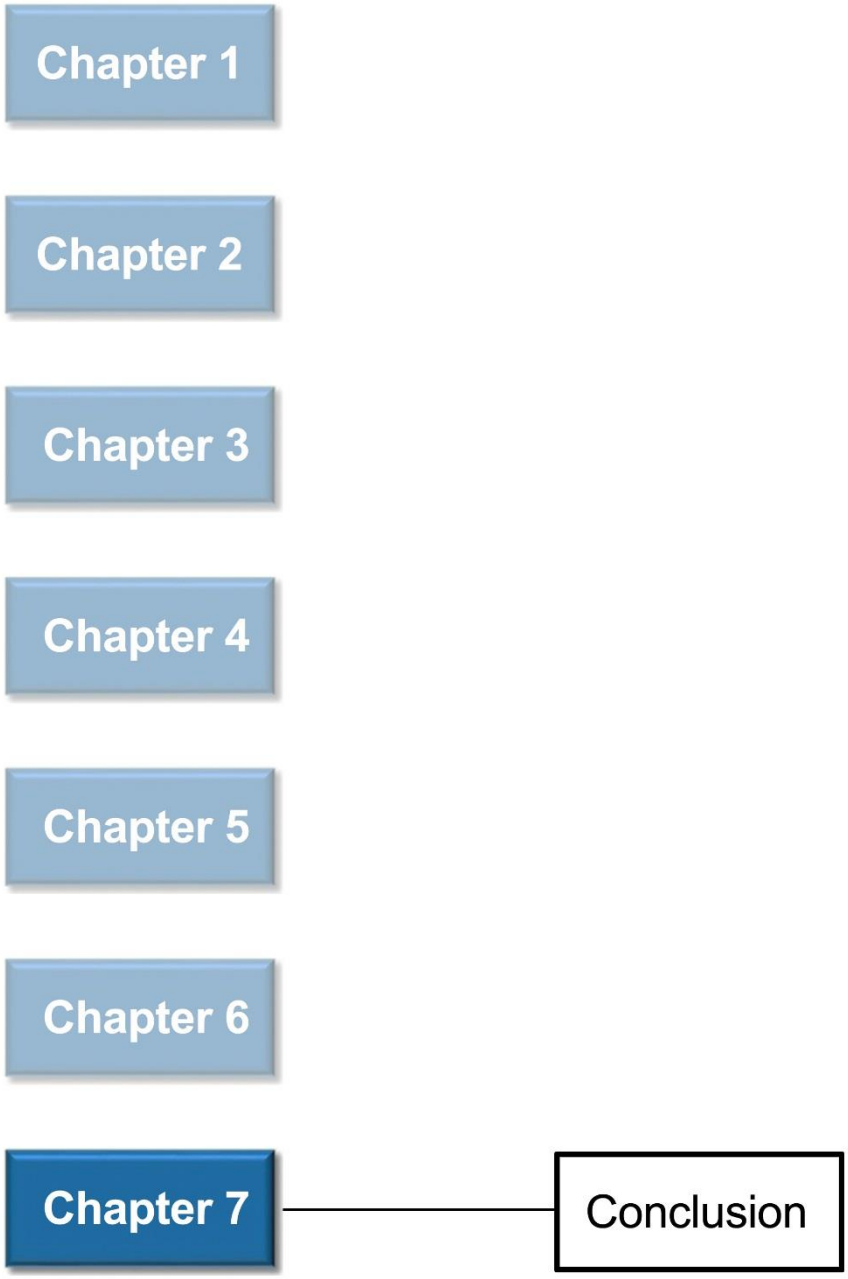
The guidelines presented in this chapter combine the needs and views expressed by the residents, with the theoretical framework related to community and home development. This integration results in guidelines that are capable of building communities and creating homes. Although the sentiment of community is a feeling that can emerge naturally, the theoretical framework showed that artificial elements created by designers, when taking into consideration the views of the residents, can be effective in stimulating a sentiment of community. The guidelines related to community were developed on the basis of proposing artificial elements that will be integrated into the physical environment of the housing estates, and be part of the community. Measures such as the creation of communal spaces, wider verge on the pavements for socialising, and broader integration between the internal and external areas of the houses will encourage social interaction and strengthen the sentiment of community.

Regarding home, the data collection discovered that the two main elements that bring the feeling of home to the residents are the fact that they own the house, and that the house is the place where they live with their families. This information converges with the concept of place presented in the theoretical framework, where a space becomes a place once it has meaning to a certain person or groups, i.e. a house turns into a home when its residents have sentiments for that house, either for the fact that they own the house, or due to this being the place where they reside with their families. Nevertheless, since the data collection discovered that the residents were more satisfied with their houses after completion of alterations, the guidelines propose a more flexible layout of the houses for the development of self-help alterations, which accommodates this need.

6.8 Conclusion

This chapter has presented the main aspects of social housing in Campo Grande that should be addressed, and proposed guidelines for the development of social housing in the city. The outcome not only offers proposals to improve aspects of social housing, but also shows the main deficiencies in the social housing development process that should be addressed. In addition, it also presents a justification for each of the guidelines. Therefore, it is a comprehensive proposal, which covers various elements identified in the data collection, and helps both the local authority and the developers to comprehend current deficiencies, and view a new approach to overcome them.

The guidelines have been evaluated by the three local authority departments involved in the process of social housing development. They received positive feedback, and constructive comments. Only one guideline had to be amended (Guideline 1 – Procurement Process). Although the content of the guideline itself has not changed, a more detailed diagram is presented, in order to clarify the role of one of the local departments. As the departments offered a few observations and questions over the guidelines 2, 5, and 7; further justification have been provided. This not only reinforces the importance of the proposals, but also the reason why they have been developed. The guidelines will be sent back to the local authority with the amendments and justifications, to supplement the local regulations in Campo Grande.


Chapter 1
Chapter 2
Chapter 3
Chapter 4
Chapter 5
Chapter 6
Chapter 7
Conclusion

Chapter 7: Conclusion

This chapter will present the conclusion of the thesis, which will be separated into four sections: Summary of Findings, Response to Aims and Objectives, Contribution to Knowledge, and Further Research. The first section, Summary of Findings, will present a summary of the main aspects identified in this work. The second section, will briefly discuss responses to the Aim and Objectives. The third section, Contribution to Knowledge, will identify the originality presented in this work. The fourth and final section, Further Research, will propose five topics that could be explored as a result of this thesis.

7.1 Summary of Findings

7.1.1 Literature Review

The History of the Development of Housing for the Lower Income People in Brazil

This research has demonstrated that the history of settlement and colonisation in Brazil, which was from 1500 to 1822, created implications for housing typologies in the country, such as the loss of vernacular architecture during the early period of colonialism. Brazilian houses followed the style of their settler, rather than creating an architectural style based on local and environmental characteristics.

This investigation also identified an important period in the history of housing development in Brazil, which was characterised by governmental intervention. It was found that with the growth of city populations, resulting from immigration and the abolition of slavery; overcrowding and lack of basic sanitary conditions arose. Due to these housing issues, the government adopted interventionist approaches. Nevertheless, this research has found that the reasons behind the interventions were focused on eliminating poor and precarious settlements from the city centres, rather than improving the quality of life of poor families.

By its nature, Government intervention is a top-down approach. Its first years coincided with the introduction of modernist architecture in the country, between the 1930s and the mid-1960s, which was marked by an attempt of the wealthy to influence the behaviour and life style of the poor. The modernist architects, who were mostly considered part of the affluent Brazilian society, had a belief that architecture could have a strong influence on human behaviour. This research present examples of modernist housing developments produced in Brazil for the

lower income people, with the aim of changing their behaviour. Nevertheless, it demonstrated that people can respond differently to domestic architecture. The investigations carried out in this work, have shown that residents in modernist housing developments have changed their houses, rather than changing their habits. Therefore, it has been found that without knowledge of people's culture and background, the manner in which people will respond to a building created for them might not have the expected results.

The period that followed modernism, which was marked by a military dictatorship between 1964 and 1985, had a different governmental approach towards housing development. It was no longer focused on how the houses should be designed, but on how many units should be built. The number of houses constructed for lower income people increased significantly in this period, as the government saw the construction industry as an opportunity to boost the national economy. Nevertheless, it was found within the literature that the new housing developments produced a lower quality of housing; from the architectural design to the type of material used. It shows that once again the government has adopted a top-down approach, demonstrating little consideration to the views and needs of the people in relation to their homes.

After the military dictatorship, the most remarkable event concerning housing was the progression towards new national legislation that aimed at providing more civil rights for the population in regards to housing. It was during this period that the concept of social housing became established, which has lasted to the present day, i.e. housing developed by the government for low income people. New programmes for social housing development were proposed, aimed at tackling the housing deficit. However, this research has pointed to similarities of the latest social housing programmes to the ones developed during the military dictatorship. It has shown that the government was more focused on the number of houses that were being constructed, rather than the quality. The government had an intention to develop the economy through the construction of social housing, as well as decreasing the housing deficit. However, the lack of bottom-up approaches and of strategies focusing on people was still visible, which contributed to the need for this research.

The History of the Development of the City of Campo Grande

The study on the development of Campo Grande has shown how the city was formed, which led to the current “urban gaps”, which are empty areas between the city centre and the periphery. This investigation has not only shown a lack of effective measures from the local authority to prevent the urban gaps, but also policies developed by the local authority that increased the number of houses built at the periphery of the city.

In the more recent years, the local authority has attempted to create mechanisms to control urban development of the city through an Urban Development Plan, which is based on zoning by function. This system provides locations of each type of development, such as social housing estates. Through the Development Plan, the local authority aimed to encourage development of housing estates connected to the urban fabric, and as close to the city centre as possible. Nevertheless, analysis of the locations of social housing estates has revealed that the Plan has been largely ignored. For reasons that are not clear, social housing developments have occurred in areas that are least recommended in the Plan.

7.1.2 Theoretical Framework

This work has developed a study not only on the interpretations of the term community, but also on the elements that comprise a community. It found that social interaction and sentiment of attachment are important elements. The level of social interaction between people can highly influence their level of attachment. The literature points to a number of variables that could have an impact on the social interaction of people in a community; such as length of residence, age, income, gender, mobility, and ownership. This research explored these social variables, and identified how they can influence the sentiment of attachment in a community. Another important aspect identified in the community studies was the possibility of intentionally creating a sense of community. It was concluded that developing mechanisms to encourage a sense of community was not only possible but also highly recommended, due to the benefits that it could bring.

In addition to community, this research also covered the concepts and aspects that comprise home. The three main components of home were identified – space, human needs, and place. This work has developed a theoretical framework for each of these components of home. Space, in this context, is the house, with its formal composition, construction materials, architectural typology, and threshold,

which are influenced by three elements – period, locality, and social class. Human needs are composed of physiological needs, such as shelter and safety, and psychological needs, which include status, aesthetics, and self-fulfilment. Place is a space characterised by activities, and to which residents develop a sentiment of attachment.

After identifying the main characteristics of community and home, studies on the strategies for the development of home and community were carried out. Three types of strategies were identified – based on: people, space, and place.

The literature points to deficiencies in the approaches of community and home development based on people. Two main approaches to people-based strategies are identified. One is mixed income communities, which is the idea of having people with various incomes living in the same area, avoiding concentration of poverty. Although studies point to an improvement of services in areas for mixed income communities in comparison of areas composed only of poor people, it has been identified that significant differences in income can be a barrier to social interaction, which can lead to isolation of certain groups. The other strategy provides temporary subsides to individuals, which may not be sustainable if they are not given appropriate support to achieve a better quality of life. Another negative aspect is that when help is only offered to a few individuals in community, they tend to migrate to other areas, leaving an even greater poverty concentration for those who remain. Therefore, these strategies present failures by not considering communities based on locality.

The research has also concluded that methods based only on space lacks effective results. The inefficiency is related to situations where designers focus only on the physical environment of a site, without fully considering the people who will use the planned spaces. Not only considering the people, but also understanding their habits, cultures, and ways of life are fundamental to successful design. Where designers lack knowledge about the people, or where they have incorrect interpretations about the users of the planned spaces, they might not be used, or they might present unexpected uses. Thus, approaches that only focus on spaces, also present inadequacies by not considering people.

Since people-based strategies have demonstrated ineffectiveness for dismissing locality, and space-based strategies have shown disregard for people, it has been concluded that place-based strategies are the most applicable to the development

of community and home, as places are the combination of space and people. Further, this research identified self-help as the most appropriate place-based strategy for the development of residential estates for low income people. The principles of self-help, and its different models of implementation into housing development, were explored. The models investigated were site and services, incremental model, in-situ upgrading, and progressive improvement. The main differences between these models are related to the level of governmental intervention, and how much they rely on residents for the development of their community and home. A study of the different stages of housing development were carried out, including - land provision, urban infrastructure, house delivery and improvements. Based on the models of self-help, and on the stages of the process of housing development, this research has proposed a theoretical framework with the related level of governmental intervention for each stage. The provision of land should be fully covered by government, as low income families are rarely able to afford market prices. The second stage, urban infrastructure and house delivery, should also be provided by the government, as residents might not have technical knowledge or sufficient income to build themselves. Although the house should be able to provide all the basic needs for their residents, they should present enough flexibility for residents to develop the next stages, which are house improvements. In that stage, residents should be able to adapt their houses according to their own needs.

7.1.3 Data Collection

The data collection aimed at identifying the perspectives of the residents of social housing estates built through My House My Life programme, and the approach from the local authority in relation to these housing estates. This data collection was carried out based on the principles established on the theoretical framework. While some issues found in the data collection were elicited from the theoretical framework, others were contested. At the beginning of the research, it was anticipated that people in these social housing estates would not present a sentiment of community, as the developments have been built according to space-based strategies. However, most interviewees confirmed that there is a sense of community in the areas where they live. This might be related to a community being formed by small scale localities – as sociologists suggest, in which people will necessarily present common bonds . Commuting and distance from city centre was another point that has been contrary to what was anticipated. Although social

housing estates are located at the periphery of the city, it was found that most residents are satisfied with the time they spend commuting from their neighbourhood to other areas in the city. The data collection also confirmed that there is a high importance of community facilities for low income people, which was one of the issues raised in the theoretical framework.

In relation to home, one of the main aspects initially expected to be found in the data collection was the lack of individual identity to the houses, as they are built with similar designs. Moreover, the design of the houses only follows the national standards imposed by Caixa. Nevertheless, residents make improvements to their houses, based on their own needs, which brings an individual identity to each house. This is inline with the aspects related to self-help and sentiment of home presented in the theoretical framework, where residents have a higher sentiment of attachment to a place when they have a great level of involvement in the development. The theoretical framework states that home is a space where people have activities and meanings, which converges with the findings of the data collection, where residents confirmed their sense of home to be connected to the activities and meanings they have in relation to their houses.

This research also discovered that the main element stimulating sentiment of home in people is ownership. This reinforced one of the concepts developed in the theoretical framework, which identifies the importance of home ownership for low income families. Moreover, people tend to be more encouraged to make improvements to houses that they own. Being able to make alterations to their houses is also an element of influence on the residents' level of satisfaction. People who make alterations to their houses affirmed that they feel more satisfied with their homes after the alterations. These findings reinforced the importance of developing houses with flexibility for additions and alterations.

The data collection also discovered a contrast between the views of the local authority and the residents. Through the interviews, the local authority demonstrated a willingness to improve the quality of social housing development, which is not reflected in the housing estates. It was clear that there is a lack of knowledge within the local authority in relation to how the residents relate to their communities and homes. Therefore, this data collection has not only found the issues in the housing estates, but also the gaps in the process for the development of social housing, from its initial concepts and design, to its

construction. The knowledge produced in this research has been crucial for the final stage, which was the development of the proposed guidelines and their evaluation.

7.2 Response to Aim and Objectives

This research aimed at proposing guidelines for the development of social housing in Campo Grande as a response to the necessity of improving the quality of social housing development in the city. For the aim to be achieved, objectives in five different fields were targeted and fulfilled.

7.2.1 To Investigate the History of the Development of Housing for the Lower Income People in Brazil, and to Critically Analyse How National Social Housing Programmes Have Influenced the Current Type of Social Housing Development

The study regarding the history of the development of housing for the lower income people in Brazil, presented in the second chapter of this thesis, has approached the subject in a concise and comprehensive format. It analysed various sources on the subject, resulting in an account that has covered the history of housing in Brazil from the pre-colonial period, to the current scenario, consistently focusing on lower income housing.

The analysis of how national social housing programmes have influenced the current type of social housing development has been carried out through an in-depth examination of the national social housing programmes, identifying the implications of each programme to the development of social housing. This investigation has also delivered a tool to measure successes and failures of these schemes.

7.2.2 To Evaluate the Development of the City of Campo Grande and the Current Local Social Housing Policies, and to Examine the Impact of these Policies towards the Production of Social Housing in the City

The literature review about the history of the development of Campo Grande has encountered a few challenges and obstacles. The city lacks academic sources covering the history of its development. Therefore, this work has included analysis of official documents provided by the local authorities as secondary data. These documents are related to both the urban development of the city, and the social housing policies developed and adopted in Campo Grande over the years.

The documents have been critically analysed, based on their regional and historical contexts. As a result, this work delivers data that offers readers information on this subject. Furthermore, it supports future research through an in-depth discourse on the development of Campo Grande, and on social housing in the city.

An examination of how the local social housing policies operate in the city and the results that they bring have been crucial for this research. It has firstly been necessary to study the policies, in order to assess the impacts that they have brought to social housing production in Campo Grande.

7.2.3 To Establish the Concepts of Community and Home, and to Develop a Theoretical Framework, which can be applied to the Context of this Research

Research on the interpretations of community and home has been carried out. Although a final definition for the term community presents numerous variations of interpretations, this work has established the concepts of community applicable to this research. A definition for the concept of home has also been established.

This work has proposed a theoretical framework for community and home, which established the basis for data collection and the development of the guidelines. The theoretical framework has been produced as a result of the literature review of the development of community and home.

7.2.4 To Undertake Data Collection in the Social Housing Developments, and with the Local Authority Departments Managing the Production of Social Housing in Campo Grande

This objective is achieved through a data collection undertaken in six housing estates of the city, with over four-hundred households participating in the questionnaire survey; in order to provide quantitative data, and thirty residents being interviewed, as part of the qualitative data collection.

The interviews with the local authority were part of the qualitative data collection. The development of these interviews gave the opportunity for analysing the perspective from the different parties involved in the process of social housing development.

7.2.5 To analyse the Data Results to enhance the Theoretical Framework, as a means of developing the Guidelines for the Improvement of Social Housing Development in the City

After the data collection, the results were analysed, and combined with the theoretical framework, which established the basis for the development of the Guidelines.

7.3 Contribution to Knowledge

The research on the principles and development of community and home has brought about a contribution that covers both scales, with a focus on the development of social housing. This investigation was presented in a paper, titled 'The Significance of Community Development in the Success of Brazilian Social Housing' at the 12th International Post-Graduate Research Conference at Salford University. The paper summarised an original contribution on the connection between the theoretical concepts of community and home development, and the applicability of these concepts into social housing estates in Brazil. The research on this subject has also resulted in a theoretical framework that establishes the main characteristics and components of community and home, incorporating the appropriate level of governmental intervention in the development of housing for low income people.

The thesis has developed a pioneering investigation into the perspectives of the residents in social housing estates funded by the My House My Life programme. This research has given the opportunity for both academic and non-academic public to learn how these residents have been reacting to their houses and communities, and what their expectations in relation to their houses have been. Furthermore, it gives the local authorities the views of the people for which the departments have been working. It is crucial for the local authority to have an understanding of how the houses they delivered, have been received.

Finally, the proposed guidelines for the development of social housing in the city of Campo Grande have brought both an academic and a practice-based contribution. It presents a systematic framework of guidelines for housing development that can be followed by academics and practitioners, especially developers and local authority departments. An additional outcome lays in the potential improvement in the quality of life for the residents, and that it presents standards and process for future housing development.

Therefore, it is notable that one of the greatest contributions of this work is the ability to bring the concepts of community and home development into the process of social housing development. Moreover, this research presents the significance of self-help to the development of community and home. Not only is it visible that residents are capable of developing the improvements required to their own houses, but it is also crucial for them to have the flexibility to carry out the

alterations they consider necessary. Although the residents demonstrate satisfaction with the fact that they receive a house fully completed, and in a housing estate with all the urban infrastructure; it is eminent that there is an importance to have certain levels of bottom-up approach. This suggests a need to restructure the procurement process for social housing developments, and the importance of building homes and creating communities – as proposed in this research. The importance of this work lays in the participation of the residents with regards to their views, needs, and cultural requirements in the initial phases of the development of the housing estates; which were obtained through the data collection. This work can be an important reference tool for future research within the field of social housing, where the aim is to apply the fundamental principles of community and home.

7.4 Further Research

Based on the findings of this research, five areas have been identified as opportunities for further research, which are: Social Housing in other Brazilian cities, The Influence of Social Variables in Social Housing Estates in Campo Grande, Social Housing in Campo Grande - Including Estates funded by alternative programmes to My House My Life, Post Occupancy Evaluation in The most recently built Social Housing Estates, and Post Occupancy Evaluation in Social Housing Estates developed as a result of the proposed Guidelines in this Thesis.

Social Housing in other Brazilian Cities

As this research was focussed on social housing estates in Campo Grande, the guidelines proposed have been designed for this city. As My House My Life programme presents national standards, and funds the construction of social housing all over the country; investigations into the impacts of these standards in other cities and regions throughout the country could be developed, in order to respond to their local characteristics. This additional research could be carried out utilising the theoretical framework developed in this work, as it presents theoretical concepts of community and home development. The research methods used for the data collection of this research could also be replicated, and applied in other cities and regions. Therefore, the contribution that will be brought to social housing development in Campo Grande, could also be delivered in other Brazilian cities.

The Influence of Social Variables in Social Housing Estates in Campo Grande

The data collection developed in this work has not taken into consideration an extended set of social variables of the population such as age, gender, and income; which are defined in the literature review as possible influences on people's perspectives of their communities and homes. These variables have not been incorporated into this research as the aim of this work was to develop standards that could be suitable for the general social group of those with low income. Moreover, variables such as income, would not have an impact on the most recently built housing estates, as all the families have similar incomes when they move in. Nevertheless, an investigation into the percentage of families who change their income, either increasing or decreasing, over their length of residency, could bring new and important socio-economic knowledge. Moreover, it

could identify a possible relationship between people's income and the extent of alterations to their houses. A study into the influence of gender and age with regards to their views towards their houses could also be developed.

Social Housing in Campo Grande - including Estates funded by alternative programmes to My House My Life

All of the social housing estates investigated in this work have been funded by My House My Life programme, as this has been the primary source of sponsorship for the development of social housing in Campo Grande over the past six years. Nevertheless, there are social housing estates that were built funded by local and/or state government sponsorship. Therefore, similar research to this work could be performed with a focus on other types of social housing estates in the city. It could develop the data collected from this research with new data collected from social housing developments funded by other programmes. If the results found were similar, the guidelines proposed in this work could then be applied to other social housing programmes in the city. If not, specific guidelines for each type of programme for social housing development could be proposed.

Post Occupancy Evaluation of the most recently built Social Housing Estates

Only one of the six housing estates investigated was designed to the latest standards established by Caixa. As the residents of this housing estate had not been living there for longer than one month at the time of the data collection, a second round of data collection in that area could assist in evaluating how the residents will have adapted to their houses over the years. The data collection developed in this work has shown that the most recently built housing estate has the lowest percentage of extensions and alterations, which could be related to either the typology of the house and the layout of the plot, or to the length of residency the people. Further data collection carried out on this estate after a few years could identify the strongest influences. According to the research developed in this work, the residents tend to develop extensions and alterations to their houses within the first two years.

Post Occupancy Evaluation in Social Housing Estates developed as a result of the proposed Guidelines in this Thesis.

Since the guidelines are proposed with the expectation that they will be incorporated as part of local authority regulations for the development of social

housing in the city, the resulting social housing estates should be evaluated. The development of a post-occupancy evaluation of the housing estates that have applied the guidelines could assess their effectiveness. It could result in future amendments to the guidelines, developed in accordance to new data from the post-occupancy evaluation.

Appendix A

Questionnaire for Residents (English)

Housing estate:_____

House address:_____

Participant name:_____

Date:____/____/____

General information	
Length of residence	
Number of residents	18 or more ( ) under 18 ( )
Employment status of each resident	( ) Employed / Self-employed ( ) Home business ( ) Unemployed ( ) Retired ( ) Student.

Home – The following questions are related to the participant's house.	
1) Have you built any extra room in the house? If so, please specify.	( ) Yes ( ) No _____ _____
2) Have you made any alteration in any of the rooms of the house?	( ) Yes ( ) No
3) Which rooms have you altered?	( ) I have not made alterations ( ) Bedroom 1 ( ) Bedroom 2 ( ) Kitchen ( ) Bathroom ( ) Living room

Neighbourhood The following questions are related to the participant's neighbourhood.	
Questions 4 to 6 for those who work only	
4) Does any of the residents work in the neighbourhood?	( ) Yes ( ) No
5) How long does it take each resident to go to work?	_____ _____
6) What type of transport do each resident use to go to work?	( ) Walking/Bicycle ( ) Bus ( ) Car ( ) Other. Please specify: _____
Questions 7 to 9 for those who study only	
7) Does any of the residents study in the neighbourhood?	( ) Yes ( ) No
8) How long does it take each resident to go to school/uni?	_____ _____
9) What type of transport do each resident use to go to school/university?	( ) Walking/Bicycle ( ) Bus ( ) Car ( ) Other. Please specify: _____

How would you rate each the following items in your neighbourhood? Note: (1) very low, (2) low, (3) moderate, (4) high (5) very high	
10) Shopping facilities	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ).
11) Public leisure places, such as parks.	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ).
12) Health centres	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ).
13) Nurseries	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ).
14) Events in the community	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ).
15) Mobility	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ).

Thank you very much for your help! Would you be happy to tell us a little bit more about the experience of living in this area through an interview within the next few days?

( ) Yes ( ) No

Telephone number:_____

Preferable dates and times: _____

Questionnaire for Residents (Portuguese)

Conjunto habitacional:_____

Endereço da casa:_____

Nome do participante:_____

Data:____/____/____

Informações gerais	
Tempo de residência	
Número de moradores	18 ou mais ( ) menos de 18 ( )
Situação de emprego de cada morador	( ) Empregado / Autônomo ( ) Empreendimento domestico ( ) Desempregado ( ) Aposentado ( ) Estudante.

Lar – As perguntas a seguir estão relacionados à casa do participante.	
1) Você construiu algum espaço extra na casa? Em caso afirmativo, especificar.	( ) Sim ( ) Não _____ _____
2) Você fez alguma alteração em um ou mais cômodos da casa?	( ) Sim ( ) Não
3) Qual ou quais cômodo (s) foi ou foram alterados?	( ) Nenhum ( ) Quarto 1 ( ) Quarto 2 ( ) Cozinha ( ) Banheiro ( ) Sala

Bairro As perguntas a seguir estão relacionadas ao bairro do participante.	
Perguntas 4 a 6 apenas para aqueles que trabalham	
4) Algum ou alguns dos moradores trabalha (m) no bairro	( ) Sim ( ) Não
5) Quanto tempo cada morador leva para ir ate o trabalho?	_____ _____
6) Qual meio de transporte cada morador usa para ir trabalhar?	( ) A pé / bicicleta ( ) Ônibus ( ) Carro ( ) Outro. Por favor especifique: _____
Perguntas 7 a 9 apenas para aqueles que são estudantes.	
7) Algum ou alguns dos moradores estuda (m) no bairro	( ) Sim ( ) Não
8) Quanto tempo cada morador a leva para ir à escola/faculdade?	_____ _____
9) Qual meio de transporte cada morador usa para ir à escola/faculdade?	( ) A pé / bicicleta ( ) Ônibus ( ) Carro ( ) Outro. Por favor especifique: _____

Como você classificaria os seguintes itens? Em que: (1) muito ruim, (2) ruim, (3) médio, (4) bom (5) muito bom (6) não sei/não opino	
10) Comercio	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ).
11) Locais públicos de lazer, tais como parque	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ).
12) Posto de saúde	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ).
13) Creche	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ).
14) Escola	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ).
15) Facilidade de locomoção	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ).
16) Eventos na comunidade	1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ).

Muito obrigado pela sua ajuda! Você gostaria de contribuir mais para essa pesquisa e nos contar um pouco mais sobre a experiência de viver nesta área através de uma entrevista nos próximos dias?

( ) Sim ( ) Não

Número do telefone:_____

Dias e horários disponiveis: _____

Appendix B

Interviews with Residents (English)

Housing estate:_____

House address:_____

Participant name:_____

Date:____/____/____

General information	
Length of residence	
Age:	Gender:
Number of residents	18 or more ( ) under 18 ( )
Employment status of each resident	( ) Employed / Self-employed; ( ) Home business, ( ) unemployed; ( ) retired; ( ) student.

1 - Questions based on theoretical framework

Home

1) How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to your daily basic needs? Please explain why.

2) How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alteration, in relation to safety? Please explain why.

3) How would you describe your level of satisfaction in relation to the house in the way it has been delivered to you, i.e. before any alterations, in relation to aesthetic? Please explain why.

Community

4) How would you describe your level of satisfaction in relation to this neighbourhood? Please explain why.

5) Do you believe there is any place or places in the neighbourhood that you could identify as a symbol or symbols of the community, such as a church, a park or a monument? If so, could you point them and explain why?

6) Do you feel like being part of a community in this neighbourhood?

2 - Questions based on the questionnaires – for those who made alterations in the house

Home and Self-help

7) What are the main reasons that led you to make alterations in the house?

8) How would you describe your level of satisfaction in relation to the house today, i.e. after the alterations? Please explain why.

9) Could you affirm that you feel like this place is your home?

2 - Questions based on the questionnaires – for those who have not made alterations in the house

Home and Self-help

7) Why have you never made any alteration in the house?

8) Do you plan to make alteration in the future? Please explain why.

9) Could you affirm that you feel like this place is your home?

2 - Questions based on the questionnaires – for those who rated the community facilities as low

Community

7) The shopping facilities of this neighbourhood have been rated as low, what do you believe to be the reasons for this?

8) The public leisure places of this neighbourhood have been rated as low, what do you believe to be the reasons for this?

9) The health centres of this neighbourhood have been rated as low, what do you believe to be the reasons for this?

10) The nurseries of this neighbourhood have been rated as low, what do you believe to be the reasons for this?

11) The events to the community of this neighbourhood have been rated as low, what do you believe to be the reasons for this?

12) The mobility of the community of this neighbourhood have been rated as low, what do you believe to be the reasons for this?

Interviews with Residents (Portuguese)

Conjunto habitacional:_____

Endereço da casa:_____

Nome do participante:_____

Data:____/____/____

Informações gerais	
Tempo de residência	
Número de moradores	18 ou mais ( ) menos de 18 ( )
Situação de emprego de cada morador	( ) Empregado / Autônomo ( ) Empreendimento domestico ( ) Desempregado ( ) Aposentado ( ) Estudante.

1 – Perguntas baseadas no quadro teórico

Lar

1) Como você descreveria o seu nível de satisfação em relação à casa na forma que ela lhe foi entregue, ou seja, antes de alterações feitas, em relação às suas necessidades básicas? Por favor justifique sua resposta.

2) Como você descreveria o seu nível de satisfação em relação à casa na forma que ela lhe foi entregue, ou seja, antes de alterações feitas, em relação à segurança? Por favor justifique sua resposta.

3) Como você descreveria o seu nível de satisfação em relação à casa na forma que ela lhe foi entregue, ou seja, antes de alterações feitas, em relação à aparência. Por favor justifique sua resposta.

Comunidade

4) Como você descreveria o seu nível de satisfação em relação à vizinhança? Por favor justifique sua resposta.

5) Você acredita ter algum lugar ou lugares na vizinhança que você identifique como um símbolo ou símbolos da comunidade, tais como uma igreja, um parque, ou um monumento? Por favor justifique sua resposta.

6) Você sente fazer parte de uma comunidade na vizinhança?

2 – Perguntas baseadas nos questionários – para aqueles que fizeram alterações na casa

Lar e Autoconstrução

7) Quais foram as principais razoes que lhe levaram a fazer alterações na casa?

8) Como você descreveria o seu nível de satisfação em relação à casa hoje, ou seja, após as alterações? Por favor justifique sua resposta.

9) Você sente que essa casa é seu lar?

2 – Perguntas baseadas nos questionários – para aqueles que não fizeram alterações na casa

Lar e Autoconstrução

7) Por que você nunca fez nenhuma alteração na casa?

8) Você planeja fazer alguma alteração na casa no future?

9) Você sente que essa casa é seu lar?

2 - Perguntas baseadas nos questionários – para aqueles que classificaram os equipamentos comunitários como ruins ou muito ruins

Comunidade

7) O comercio da vizinhança foi considerado ruim, quais você acredita serem as razoes para isso?

8) As areas públicas de lazer da vizinhança foram consideradas ruim, quais você acredita serem as razoes para isso?

9) Os postos de saúde da vizinhança foram considerados ruim, quais você acredita serem as razoes para isso?

10) As creches da vizinhança foram considerados ruim, quais você acredita serem as razoes para isso?

11) Os eventos da comunidade da vizinhança foram considerados ruim, quais você acredita serem as razoes para isso?

12) A facilidade de mobilidade da vizinhança foi considerada ruim, quais você acredita serem as razoes para isso?

Appendix C

Evaluation of Guidelines (English)

Please review each of the guidelines by putting a rating, from 1 to 5, for each section in the table below; and by answering the two questions on the next page, where you will also find a general comments box.

Section A

Effectiveness of the guidelines with regards to the quality of social housing, where:

1 – Lowers the quality of social housing
5 – Improves the quality of social housing

Section B

The ease of understanding the guidelines, where:

1 – Very difficult to understand
5 – Very easy to understand

Section C

The feasibility of the guidelines, where:

1 – Not feasible at all
5 – Very feasible

Section D

The ease of incorporating the guidelines, where:

1 – Very difficult to incorporate
5 – Very easy to be incorporate

No.	Guideline	A	B	C	D
1	Procurement Process				
2	Area Reserved for Pre-Planned Community Hub				
3	Area Reserved for Post-Development Community Hub				
4	Public Leisure Places				
5	Local Street – Pedestrian Zones				
6	Local Street – Traffic Calming				
7	Collector Street – Pedestrian Zones				
8	Plots and Parcels				
9	Roof Orientation				
10	Front Setback				
11	Inside and Outside Integration				
12	Extension – Internal Layout				
13	Additions and Alterations				
14	Flexibility for Extension				
15	Living Room and Kitchen				

Question 1 – What are the best and worst aspects of the guidelines?
Best
Worst

Question 2 – What suggestions would you give to improve the guidelines?

Other comments

Evaluation of Guidelines (Portuguese)

Por favor, avalie cada uma das diretrizes, colocando uma classificação, de 1 a 5, para cada seção na tabela abaixo; e respondendo as duas perguntas na próxima página, onde você também encontrará uma caixa de comentários gerais.

Seção A

Eficácia das diretrizes em relação à qualidade da habitação social, onde:

1 – Piora a qualidade da habitação social
5 – Melhora a qualidade da habitação social

Seção B

Facilidade de entender as diretrizes, onde:

1 – Muito difícil de entender
5 – Muito fácil de entender

Seção C

Viabilidade de implementação das diretrizes, onde:

1 – Muito inviável
5 – Muito viável

Seção D

Facilidade de incorporar as diretrizes, onde:

1 – Muito difícil de incorporar
5 – Muito fácil de incorporar

No.	Diretrizes	A	B	C	D
1	Processo de Aprovação do Empreendimento				
2	Área Reservada para Equipamentos Comunitários Pré-planejados				
3	Área Reservada para Equipamentos Comunitários Pós-construção				
4	Locais Públicos de Lazer				
5	Vias Locais – Calçadas				
6	Vias Locais – Velocidade no Trânsito				
7	Vias Coletoras – Calçadas				
8	Lotes e Sublotes				
9	Telhado				
10	Recuo Frontal				
11	Integração entre as Áreas Internas e Externas				
12	Expansão – Layout Interno				
13	Expansão – Planta Baixa				
14	Flexibilidade Estrutural para Expansões				
15	Salas de Estar/Jantar e Cozinha				

Questão 1 – Quais são os melhores e piores aspectos das diretrizes apresentadas?
Melhores
Piores

Questão 2 – Quais sugestões você daria para melhorar as diretrizes?

Outros comentários

Appendix D

D.1 Documentation

D.1.1 Caixa's Technical Standards

Figure D-1 - Indicative sample of living room with sufficient seats four occupants, and a minimum width of 2.4m, as currently required by Caixa

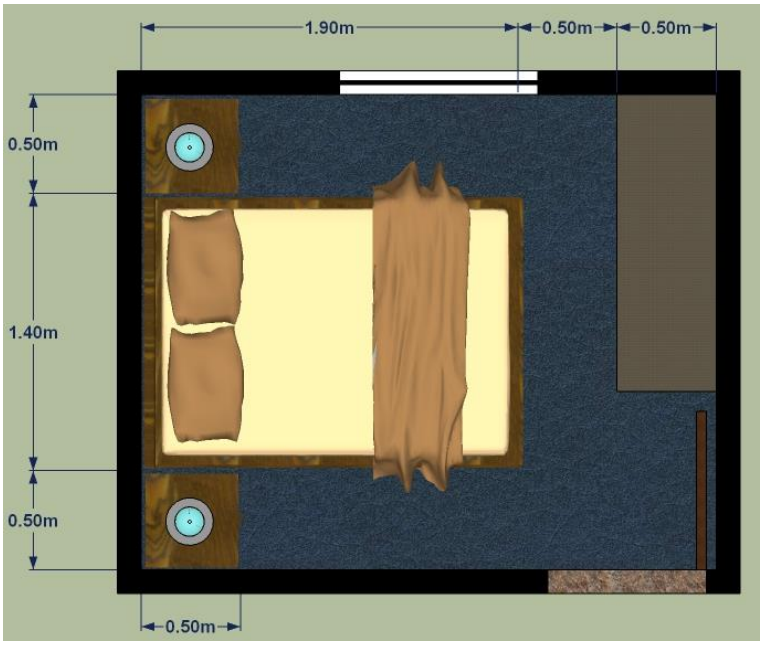


Figure D-2 - Indicative sample of current minimum dimensions for the master bedroom.

Figure D-3- Indicative sample of current minimum dimensions for the second bedroom.

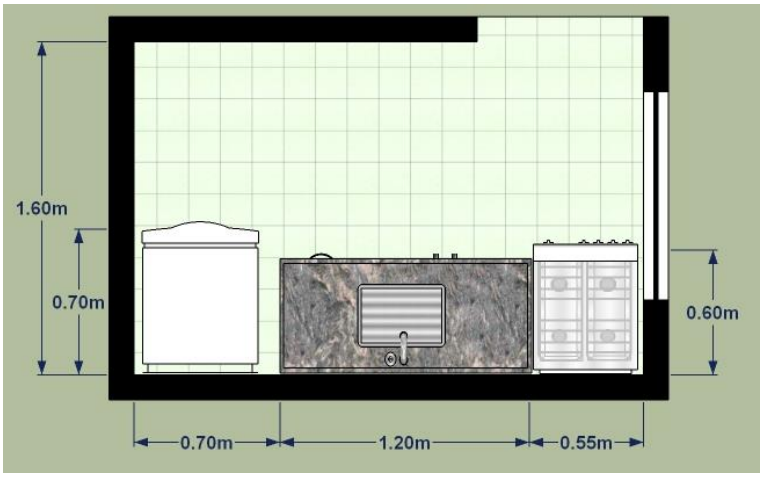


Figure D-4 - Indicative sample of current minimum dimensions for the kitchen.

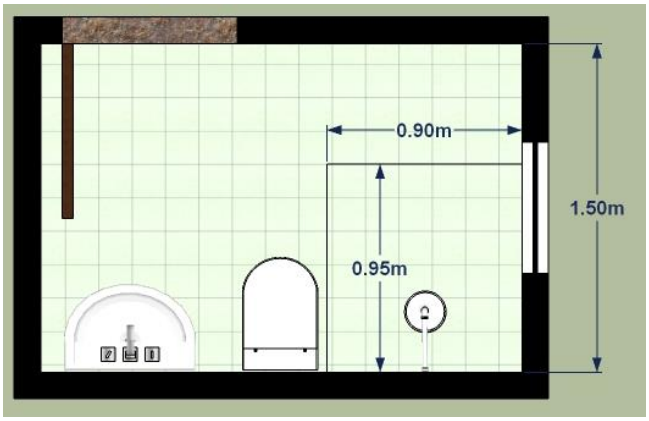


Figure D-5 - Indicative sample of current minimum dimensions for the bathroom.

D.1.2 City's Regulations

Area Reserved for Community Hub

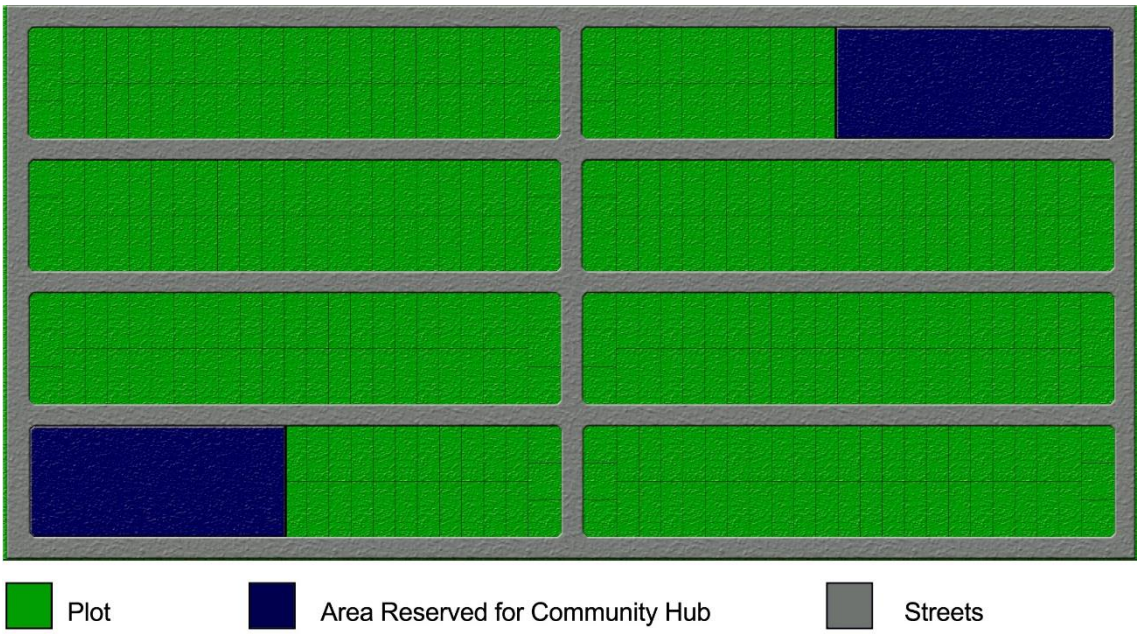


Figure D-6 - Indicative diagram of land subdivision of a social housing estate, with 10% of its area reserved for community hub.

Local Streets

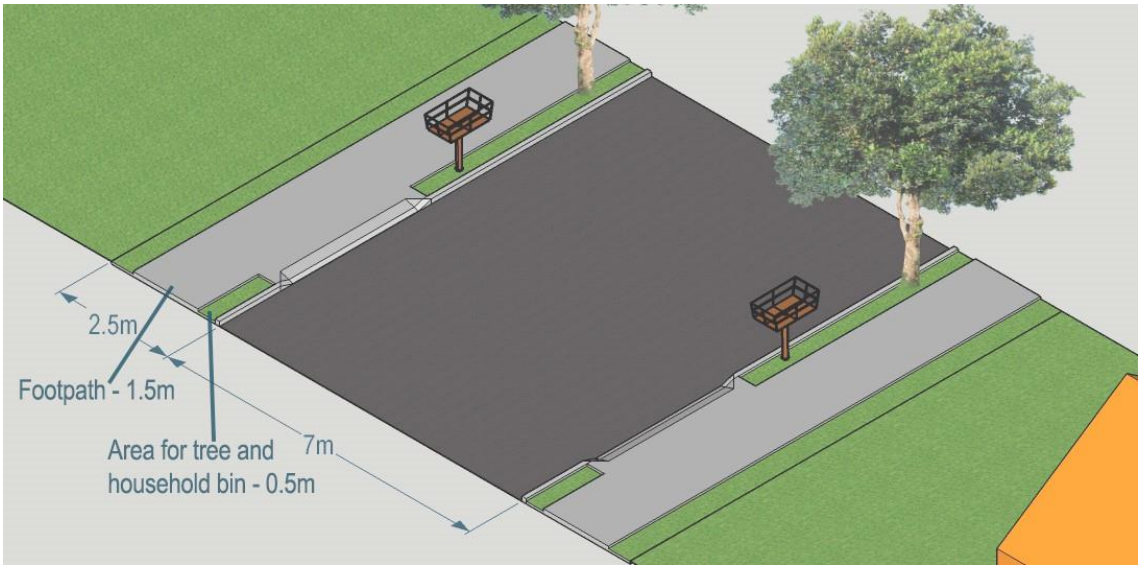


Figure D-7 - Indicative diagram of minimum dimensions for local streets, based on the city's regulations

Collector Streets

Figure D-8 - Indicative diagram of minimum dimensions for collector streets, based on the city's regulations.

Parcels and Plots[1]

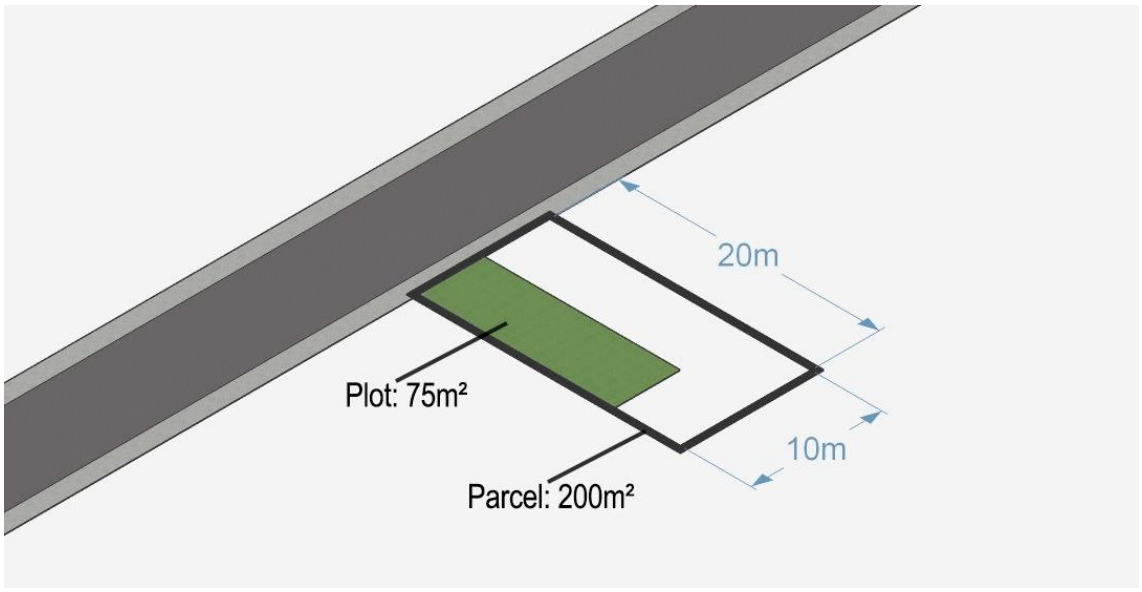


Figure D-9 - Indicative diagram of minimum dimensions for plots and parcels, based on the city's regulations.

[1] Parcel refers to the areas created from the land subdivisions, while plot is the private area for each household, which can be a parcel further subdivided.

Built Area

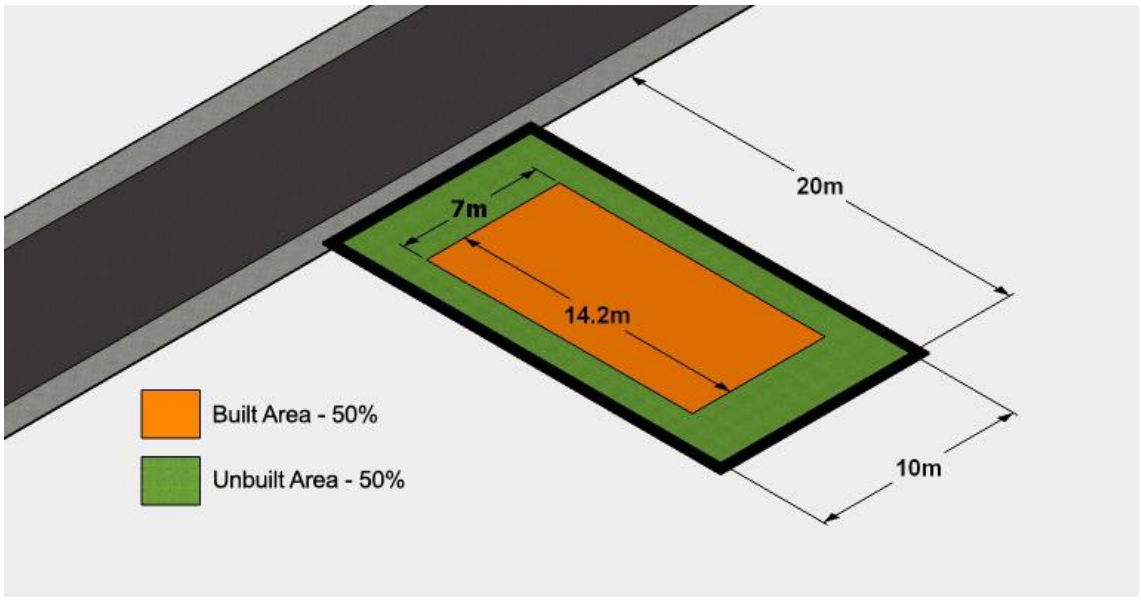


Figure D-10 - Indicative diagram of maximum area for built area, based on the city's regulations.

Permeable Area

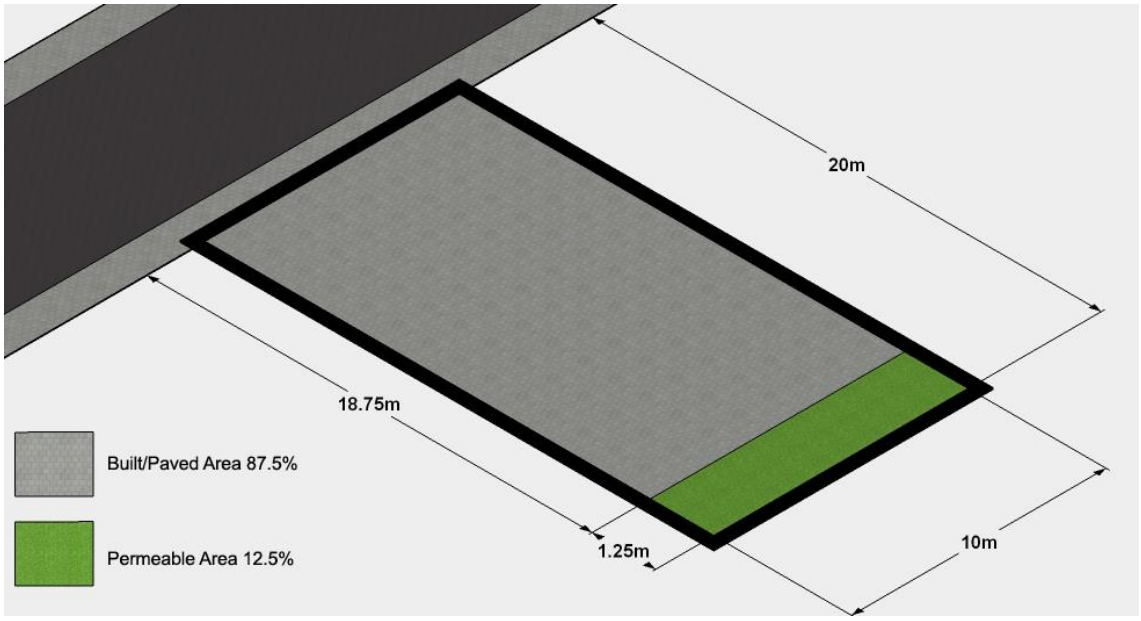


Figure D-11 - Indicative diagram of minimum permeable area, based on the city's regulations.

Setback

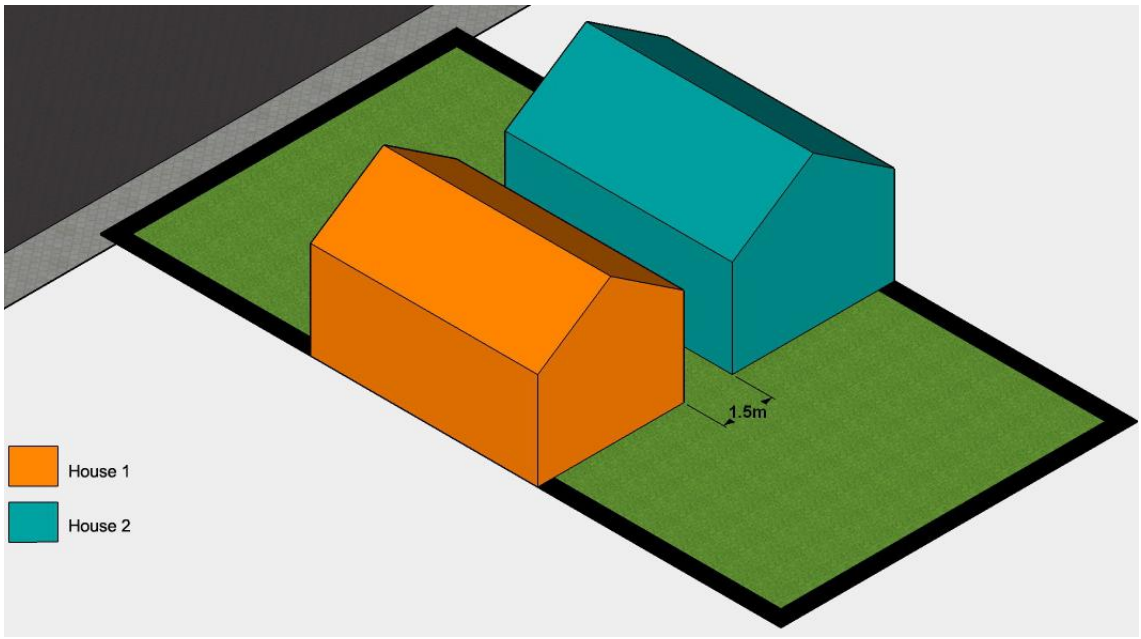


Figure D-12 - Indicative diagram of minimum setback between houses on the same plot, based on the city's regulations.

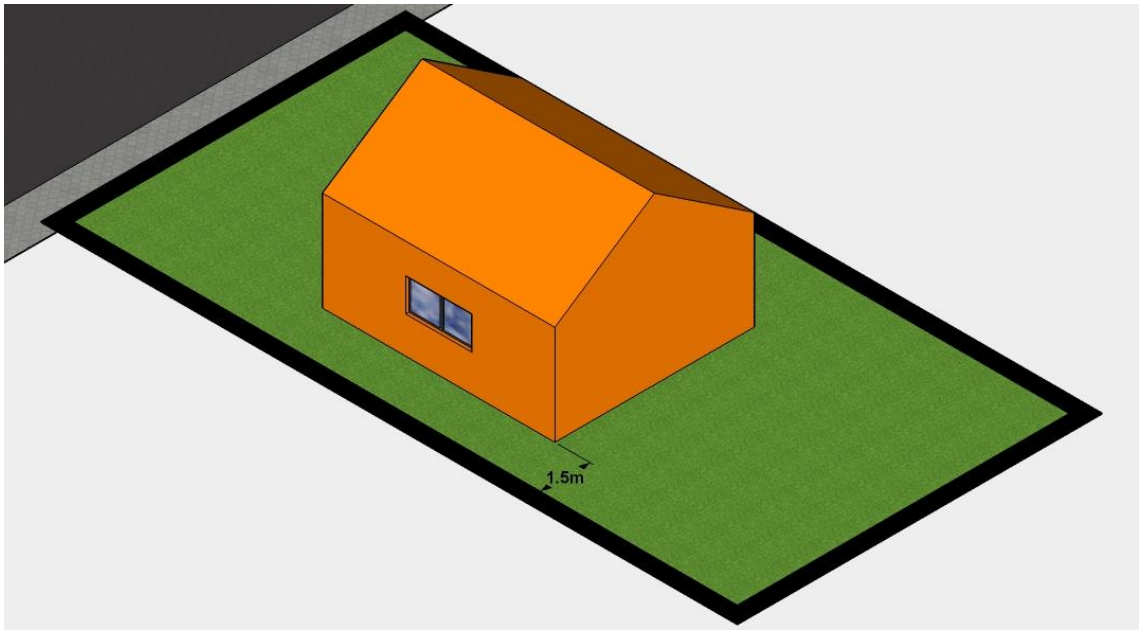


Figure D-13 - Indicative diagram of minimum setback between a wall with a window and the edge of the plot.

D.2 Results of Data Collection of the Housing Estates

D.2.1 Housing Estate 1 – Nova Serrana

Introduction and Plans

Figure D-14 - The location of the housing estate Nova Serrana in Campo Grande.

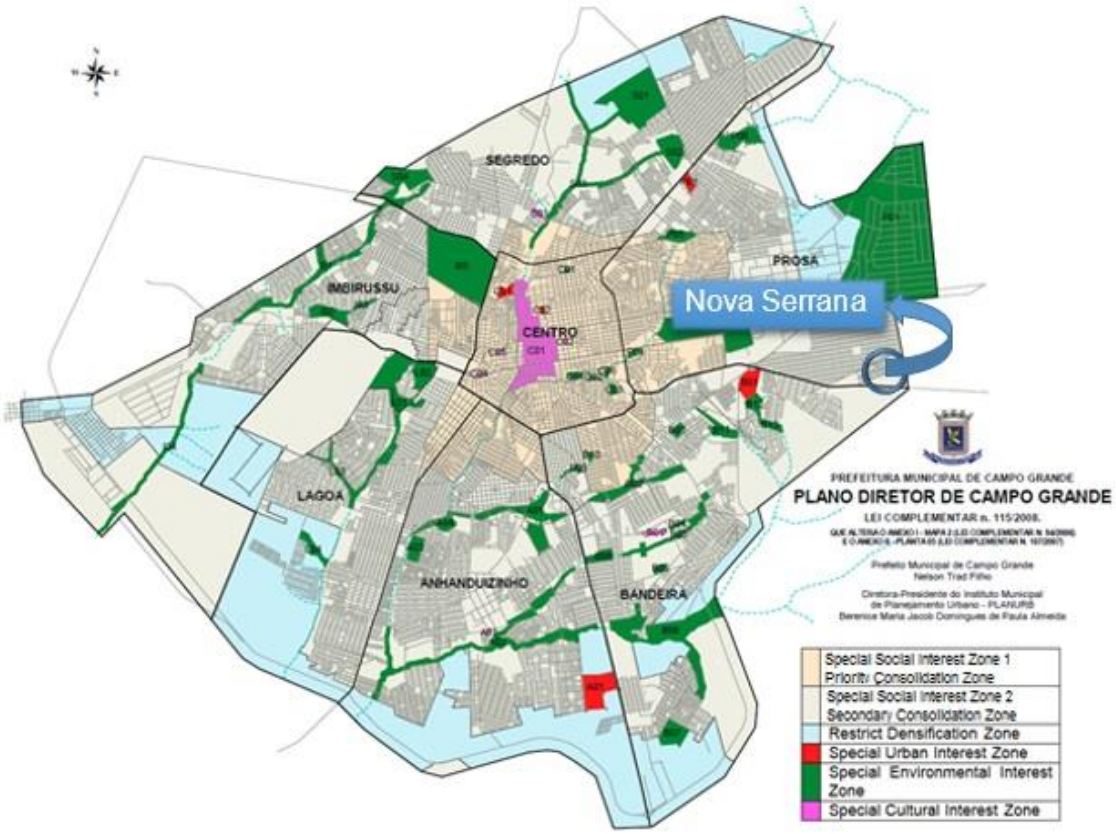
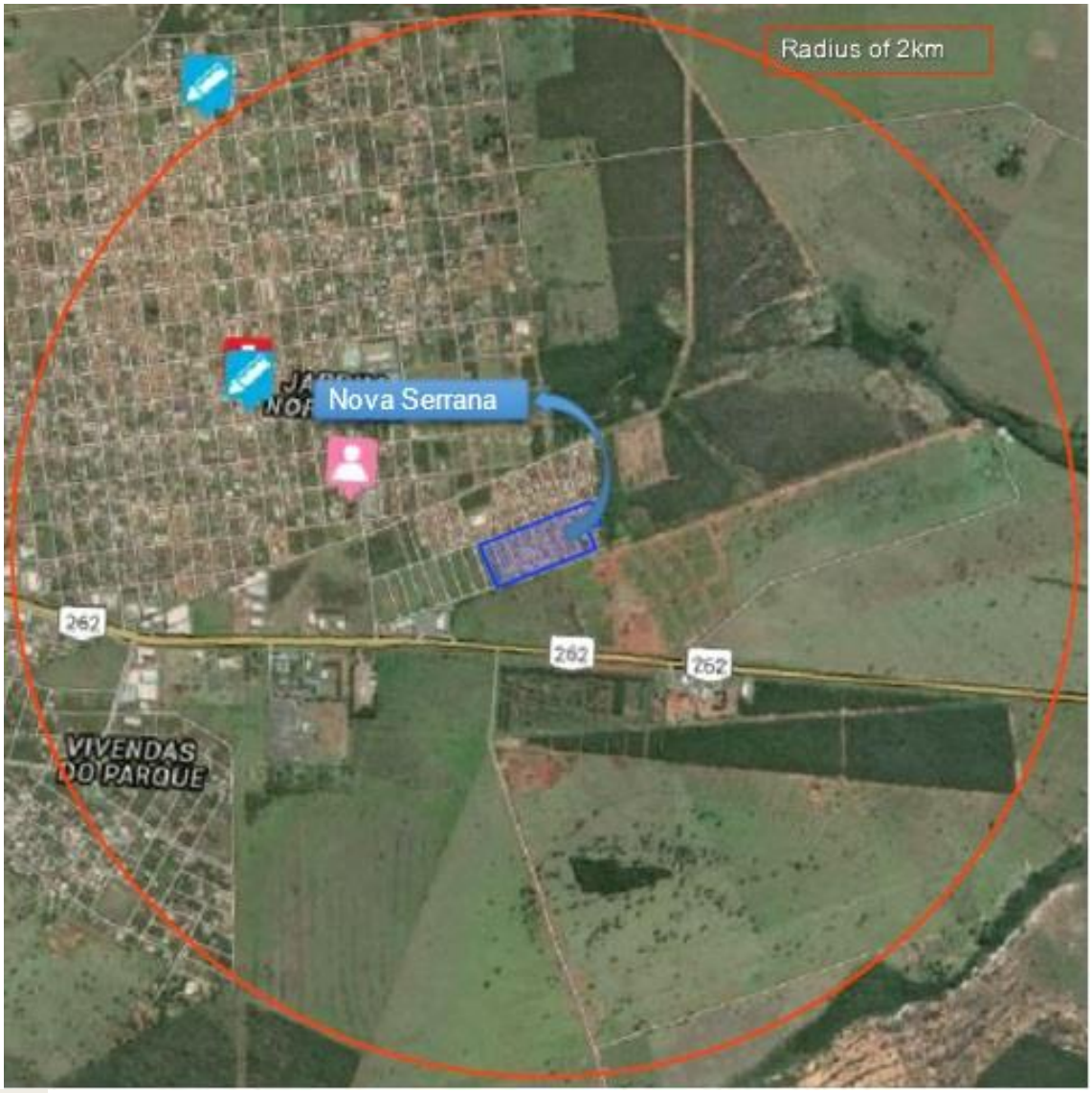


Figure D-15 - Municipal Urban Development Plan of Campo Grande

Source: Adapted from Campo Grande. Available at: http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10 (Assessed: 10th Jan 2015).



Council school Health centre Council social assistance/Nurseries

Figure D-16 - Public services found within a radius of 2km from the centre of the housing estate Nova Serrana

Source: Adapted from Sisgram. Available at: http://www.capital.ms.gov.br/egov/sisgran/geo/index.php (Assessed: 10th Jan 2015).

Results of Quantitative Data Collection

Number of Residents

Table D-1 - Average of number of residents per house.

	Residents per house	Under 18	18 or more
Mean	4	2	2

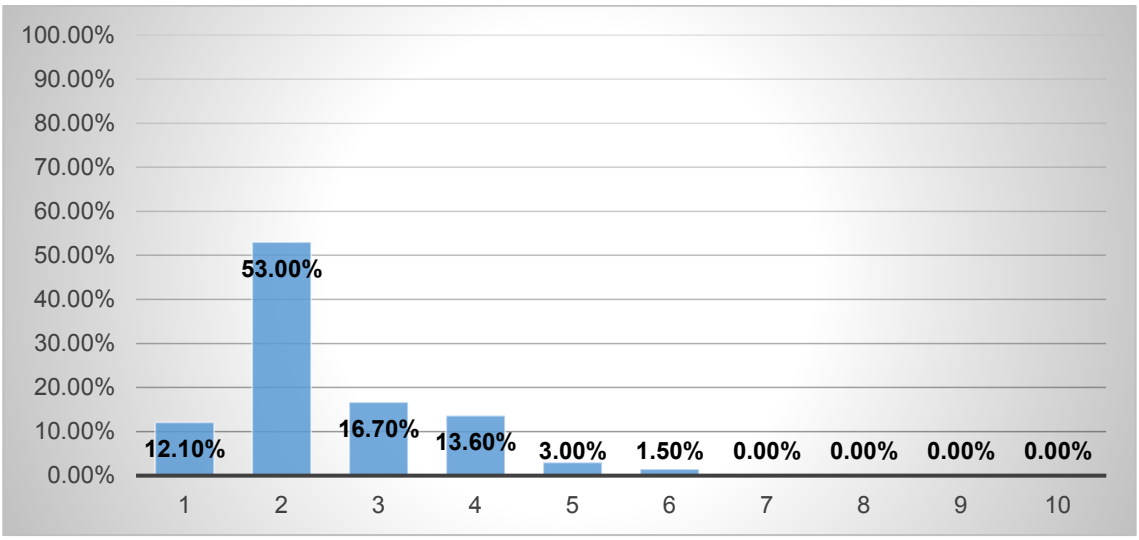


Figure D-17 - Percentage of number of adults per house (over 18 years-old).

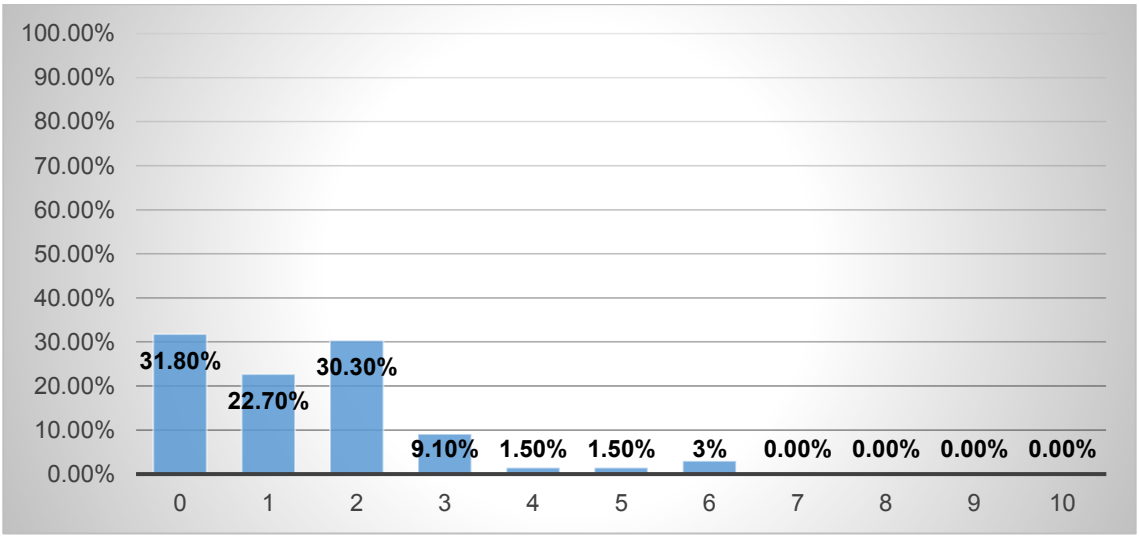


Figure D-18 - Percentage of number of children per house (under 18 years-old).

Employment Status of Residents

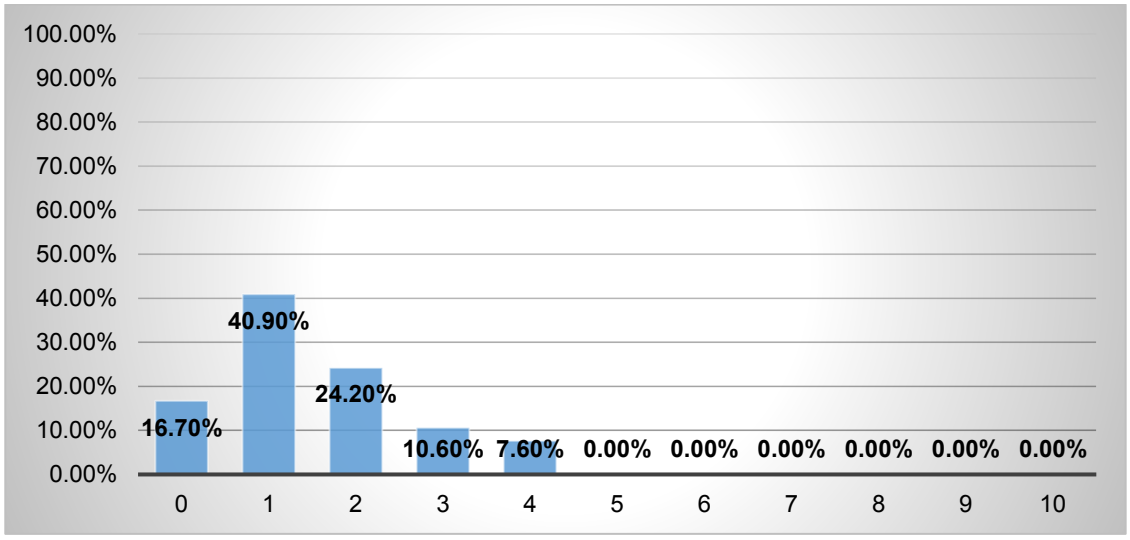


Figure D-19 - Percentage of number of people who work per house.

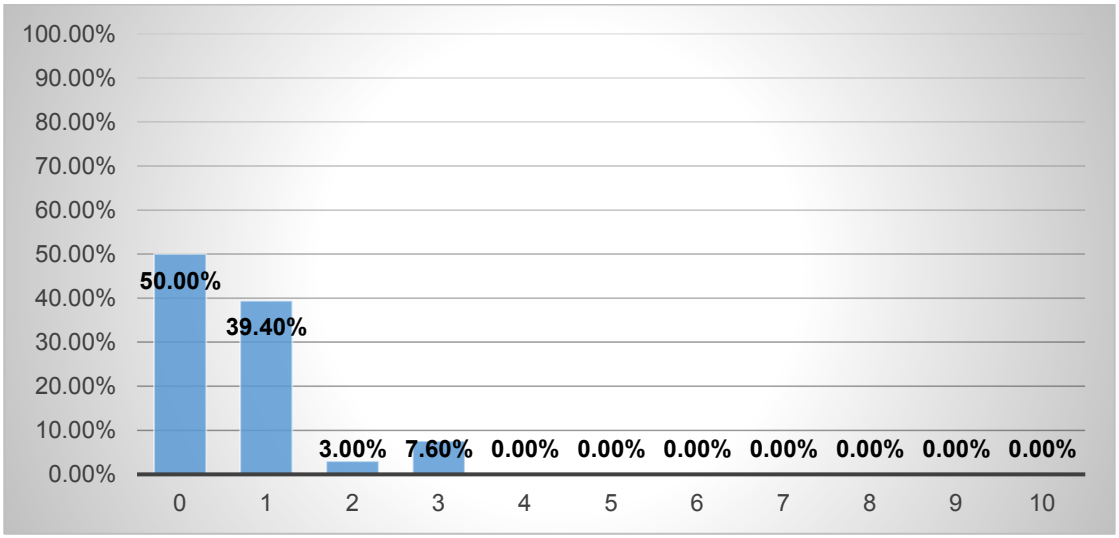


Figure D-20 - Percentage of number of people who do not work nor study per house.

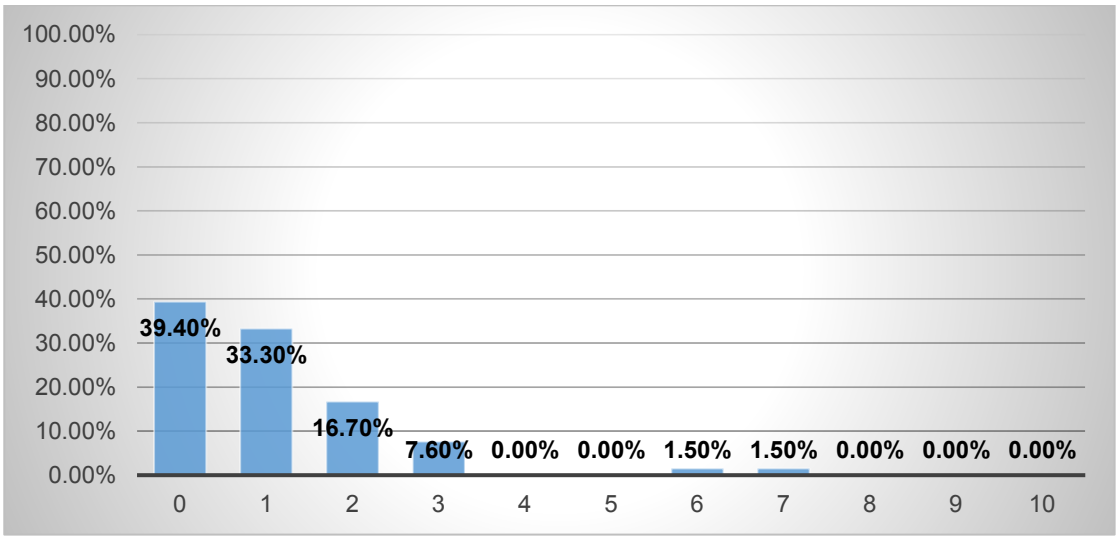


Figure D-21 - Percentage of number of students per house.

Alterations and Extensions

Table D-2 - Summary of Alterations to Existing Rooms.

	Bed 1	Bed 2	Living	Bathroom	Kitchen
Houses	2	1	3	1	7
Percentage	3	2	5	2	10

D.2.2 Housing Estate 2 – Vila Fernanda

Introduction and Plans

Figure D-22 - The location of the housing estate Vila Fernanda in Campo Grande.

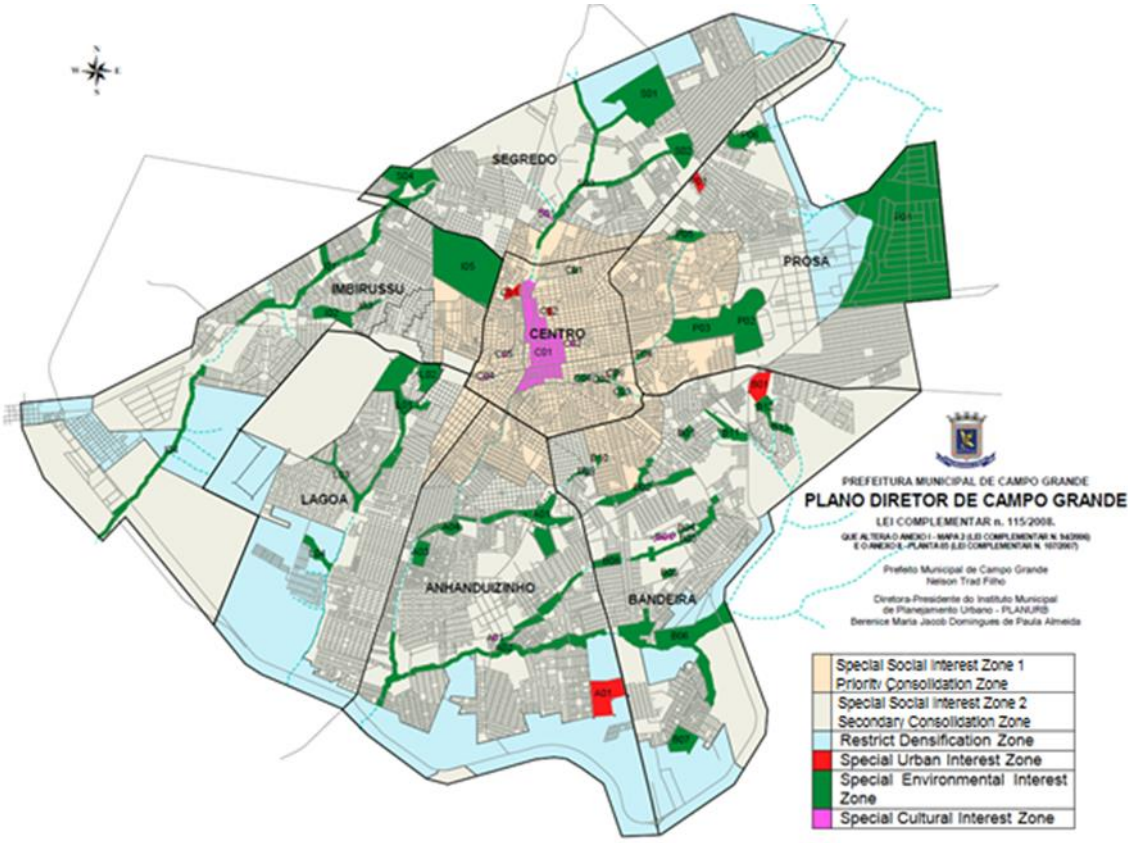
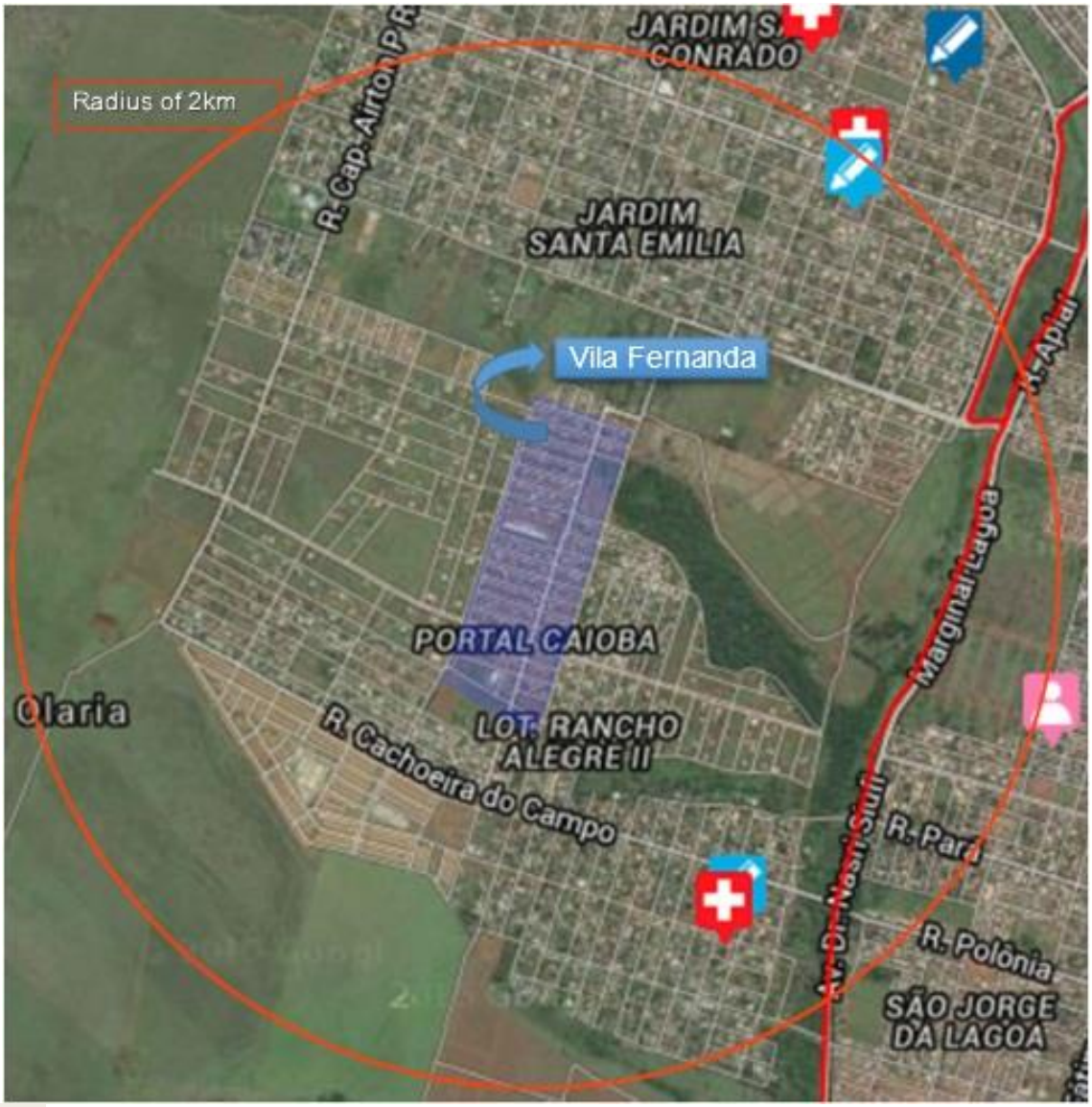


Figure D-23 - Municipal Urban Development Plan of Campo Grande.

Source: Adapted from Campo Grande. Available at: http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10 (Assessed: 10th Jan 2015).



Council school State school Health centre

Council social assistance/Nurseries Cycle Paths

Figure D-24 - Public services found within a radius of 2km from the centre of the housing estate Vila Fernanda.

Source: Adapted from Sisgram. Available at: http://www.capital.ms.gov.br/egov/sisgran/geo/index.php (Assessed: 10th Jan 2015).

Results of Quantitative Data Collection

Number of Residents

Table D-3 - Average of number of residents per house.

	Residents per house	Under 18	18 or more
Mean	4	2	2

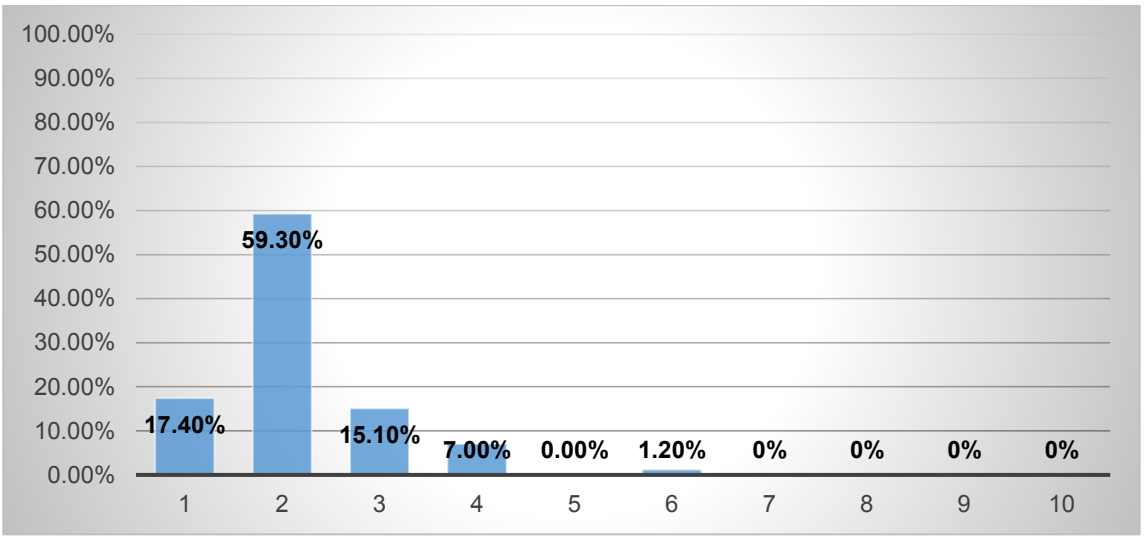


Figure D-25 - Percentage of number of adults per house (over 18 years-old).

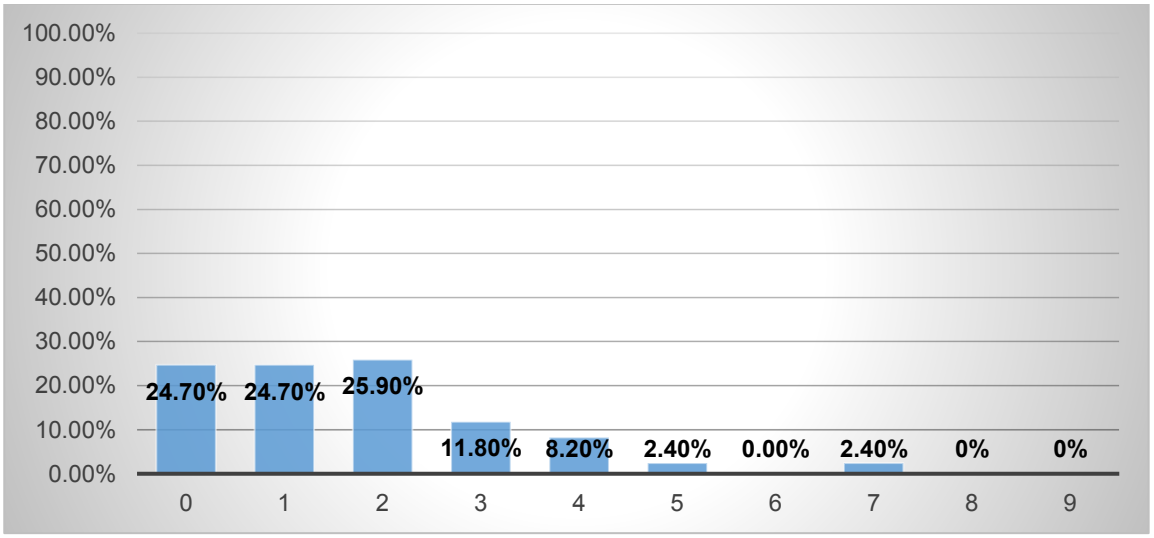


Figure D-26 - Percentage of number of children per house (under 18 years-old).

Employment Status of Residents

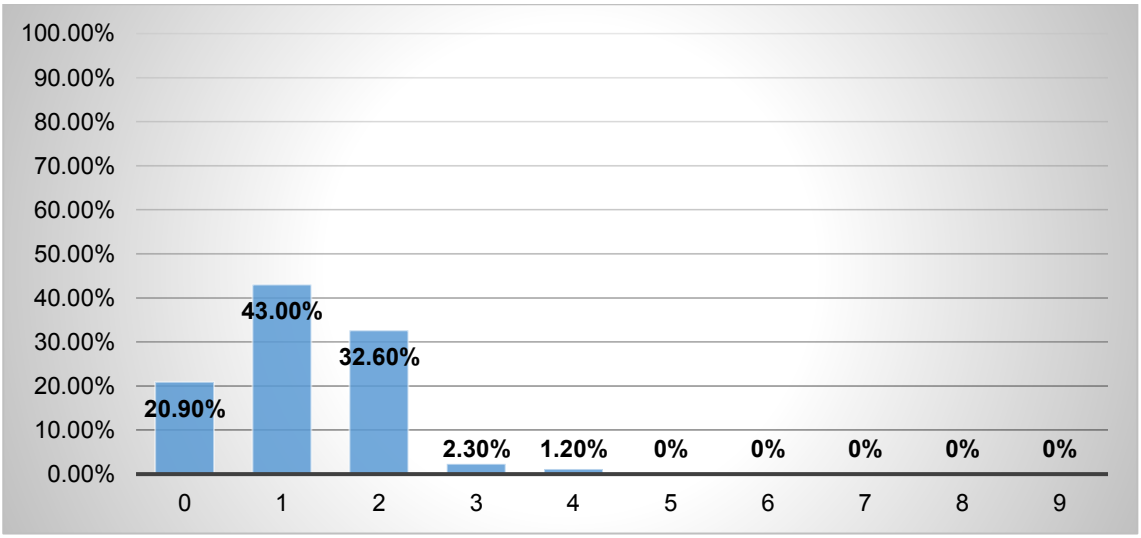


Figure D-27 - Percentage of number of people who work per house.

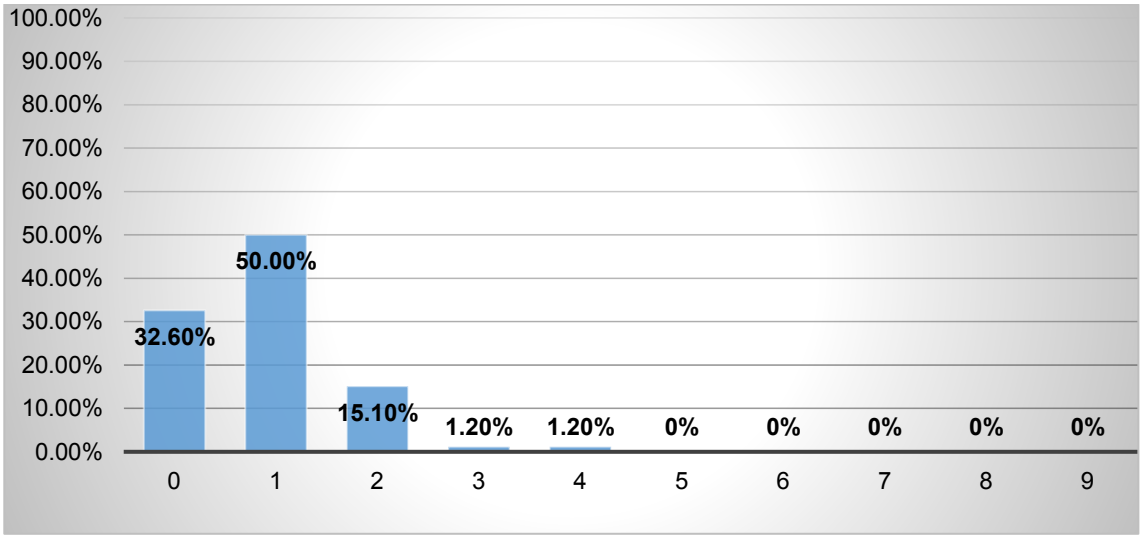


Figure D-28 - Percentage of number of people who do not work nor study per house.

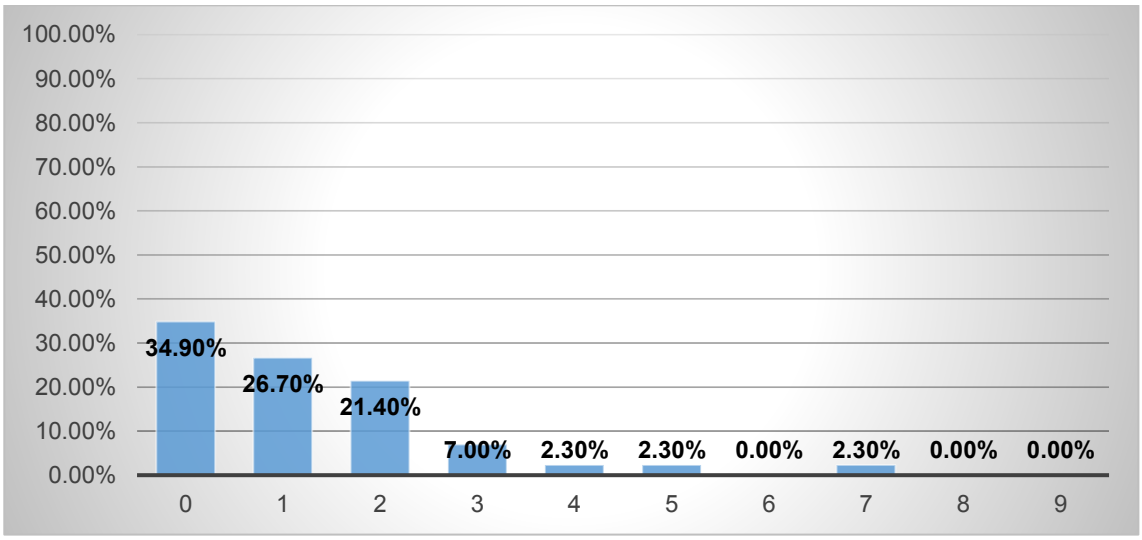


Figure D-29 - Percentage of number of students per house.

Alterations and Extensions

Table D-4 - Summary of Alterations to Existing Rooms.

	Bed 1	Bed 2	Living	Bathroom	Kitchen
Houses	2	1	2	1	7
Percentage	2	1	2	1	8

D.2.3 Housing Estate 3 – Joao Alberto Amorim

Introduction and Plans

Figure D-30 - The location of the housing estate Joao Alberto Amorim in Campo Grande. Source: Google Maps.

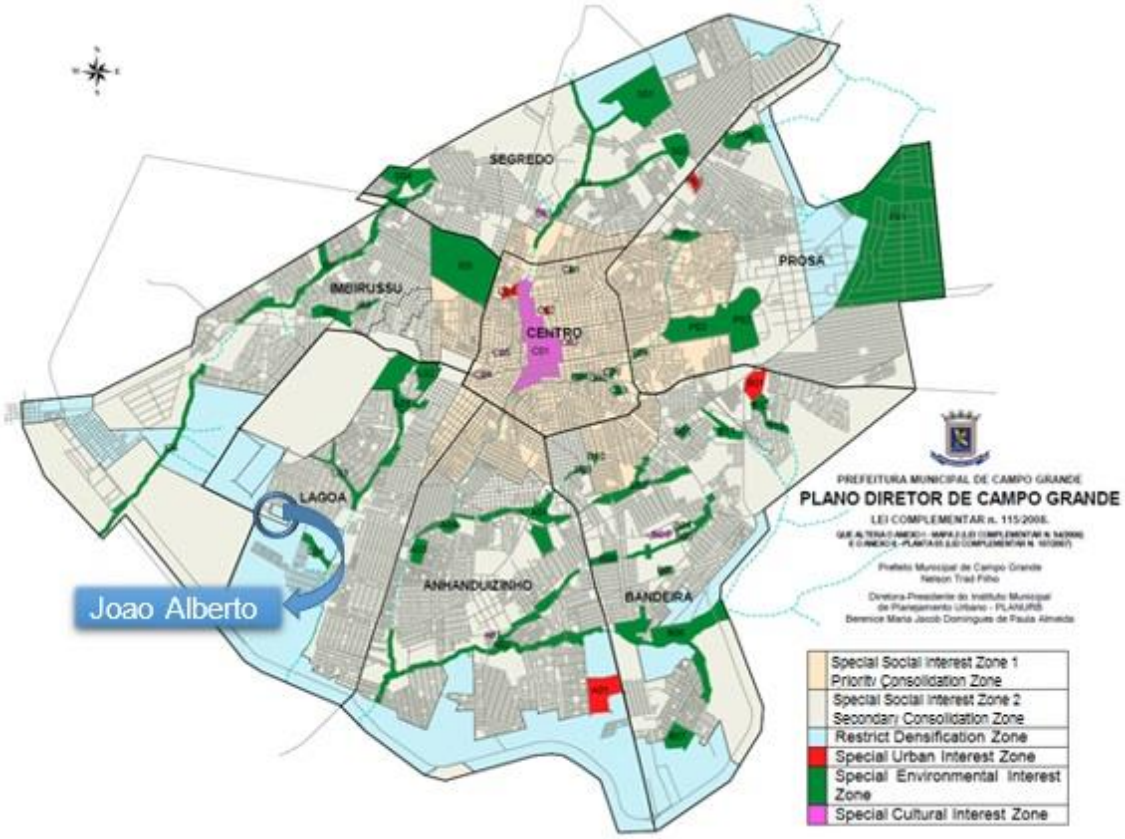


Figure D-31 – Municipal Urban Development Plan of Campo Grande.

Source: Adapted from Campo Grande. Available at: http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10 (Assessed: 10th Jan 2015).

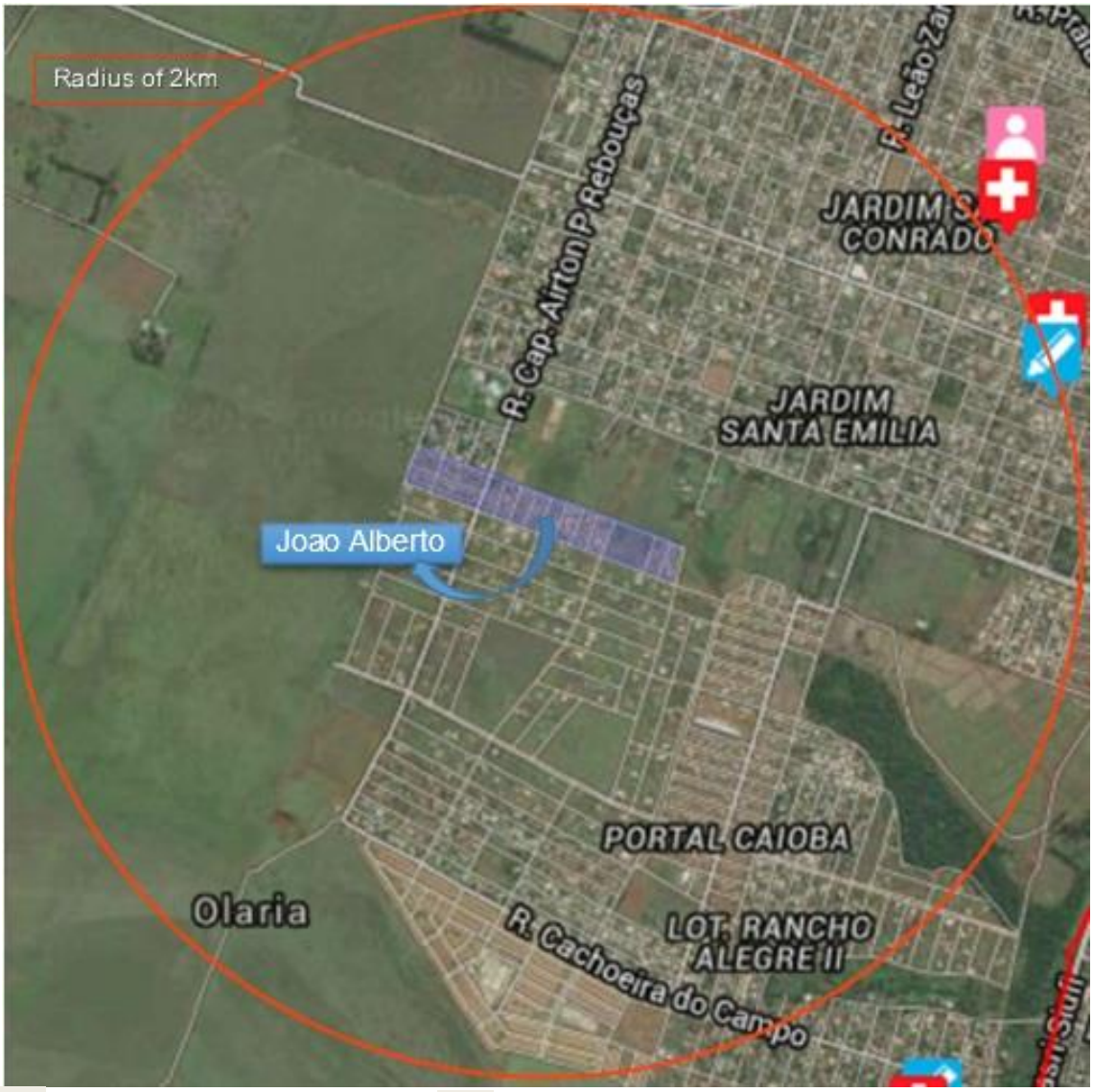


Figure D-32 - Public services found within a radius of 2km from the centre of the housing estate Joao Alberto Amorim.

Source: Adapted from Sisgram. Available at: http://www.capital.ms.gov.br/egov/sisgran/geo/index.php (Assessed: 10th Jan 2015).

Results of Quantitative Data Collection

Number of Residents

The average of number of residents per house is the same of the previous developments, with four residents per house, being two adults and two children (see Table 5-14). Although more than a third of the houses have four residents, around 28% of the residents have a number of residents above the anticipated figure (see Figure 5-086).

Table D-5 – Average of number of residents per house.

	Residents per house	Under 18	18 or more
Mean	4	2	2

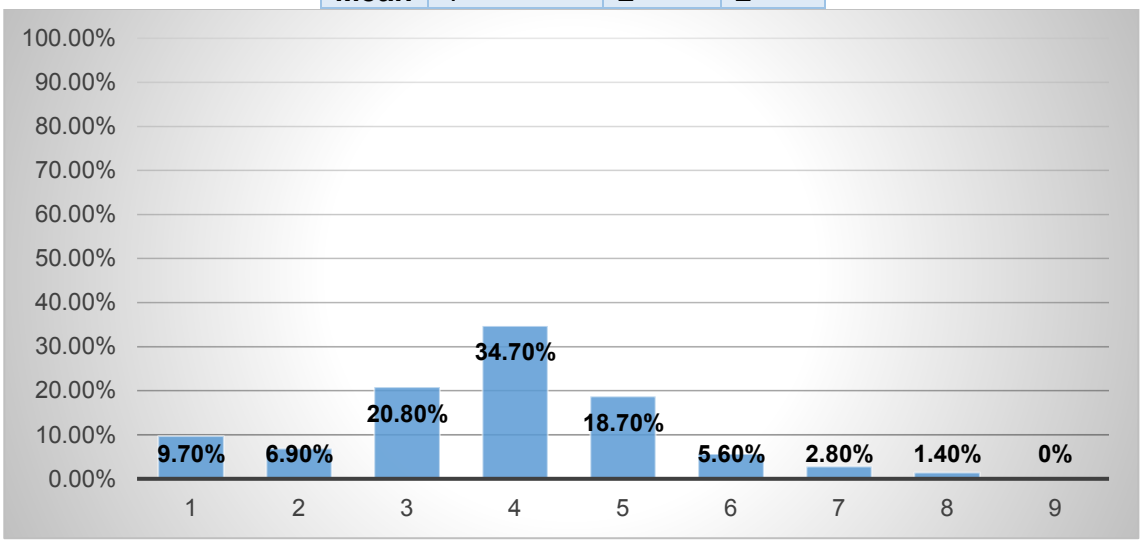


Figure D-33 – Percentage of number of residents per house.

Around a half of the houses have two adults (see Figure 5-87). Although the average is two children per house, only around a third of the houses are actually occupied by two children (see Figure 5-88).

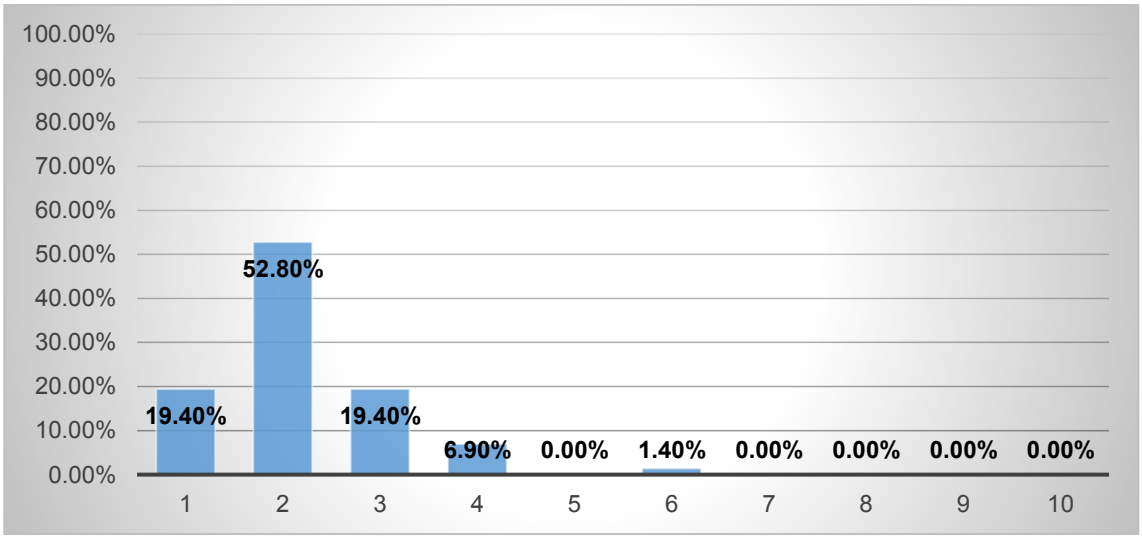


Figure D-34 – Percentage of number of adults per house (over 18 years).

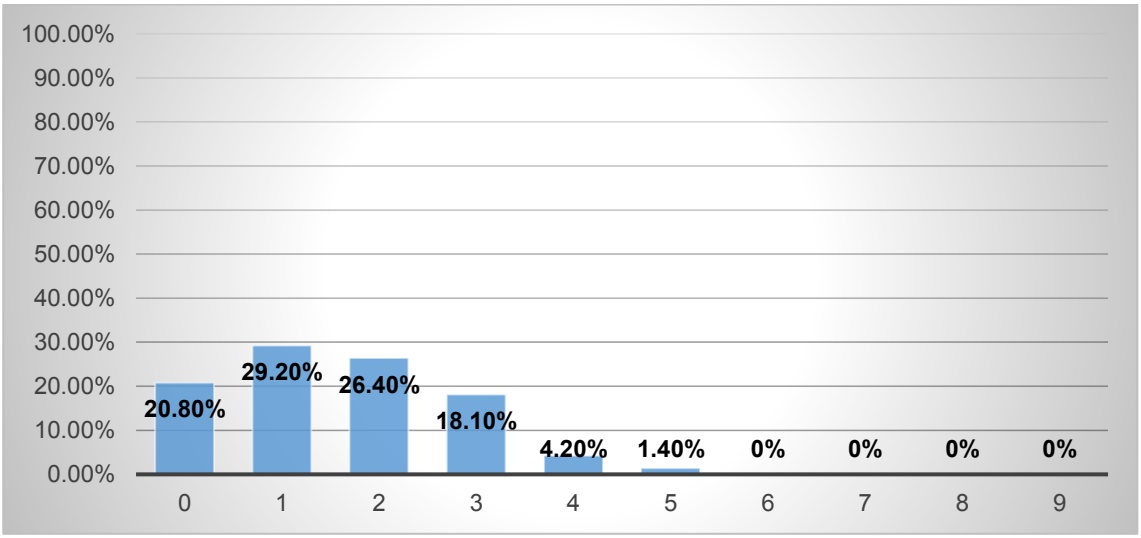


Figure D-35 – Percentage of number of children per house (under 18 years).

Employment Status of Residents

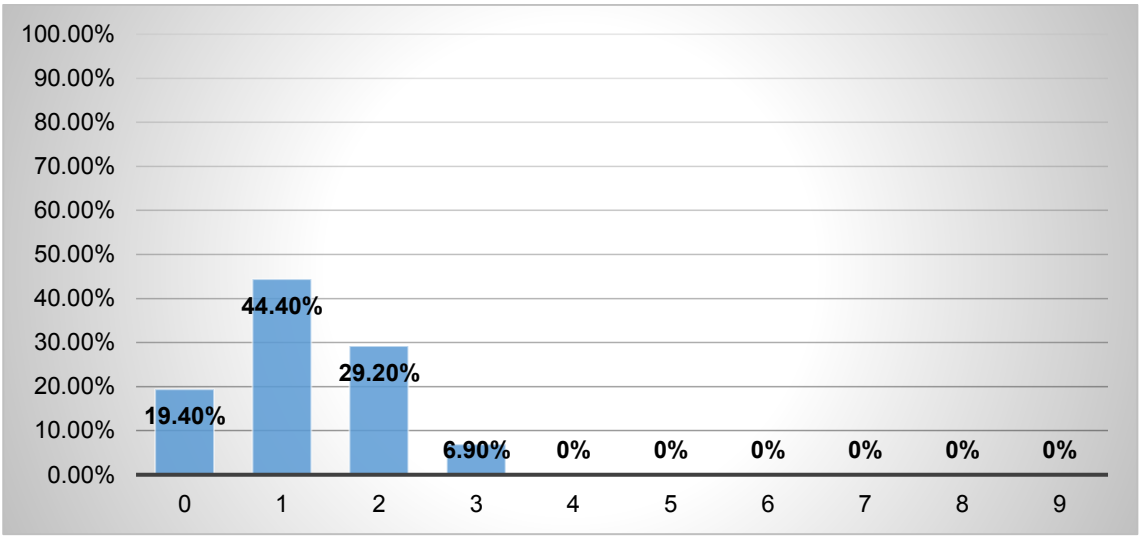


Figure D-36 – Percentage of number of people who work per house.

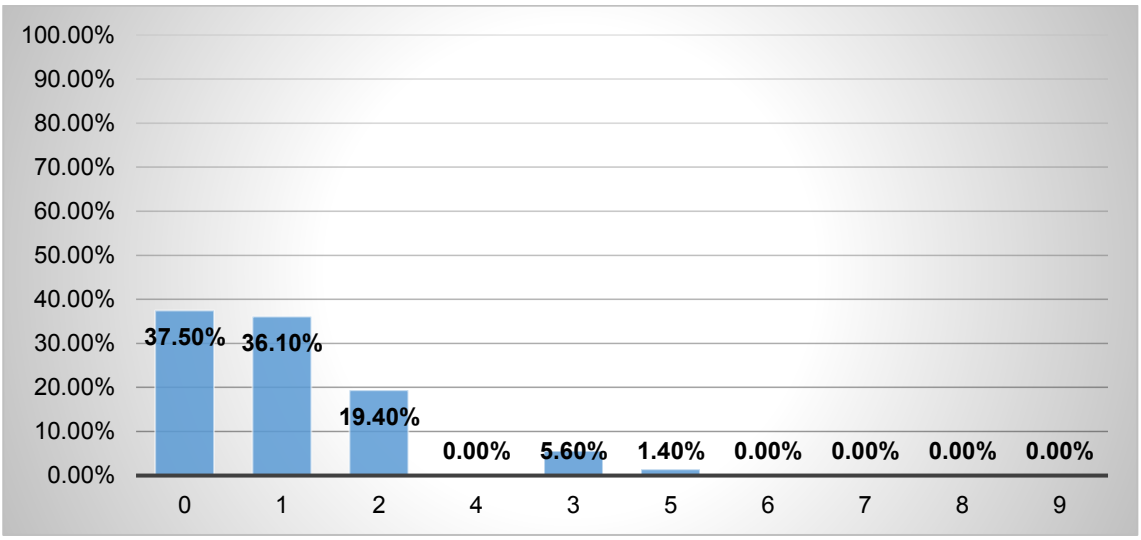


Figure D-37 – Percentage of number of people who do not work nor study per house.

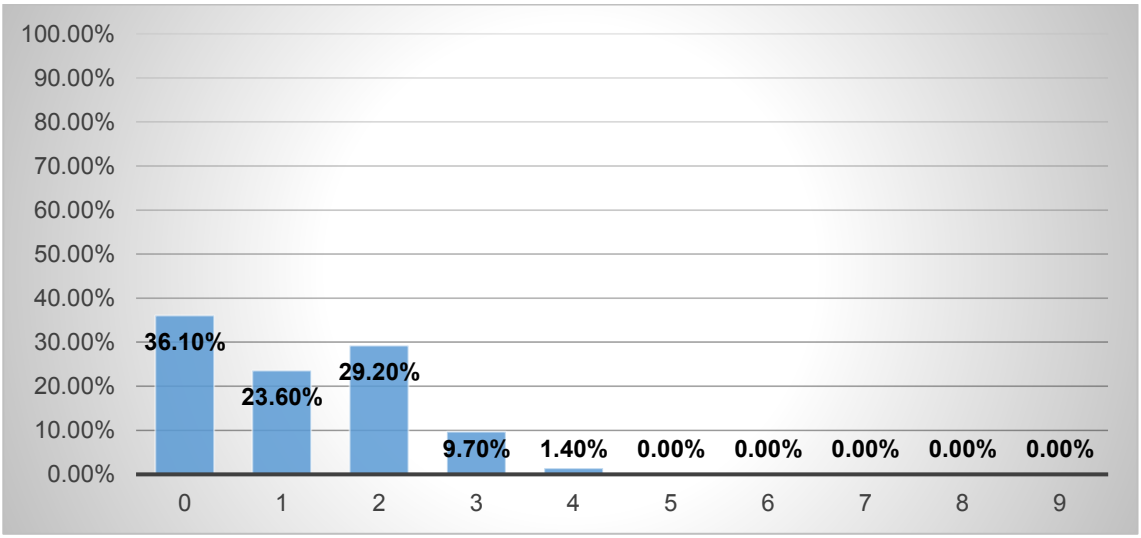


Figure D-38 – Percentage of number of students per house.

Alterations and Extensions

Table D-6 – Summary of Alterations to Existing Rooms.

	Bed 1	Bed 2	Living	Bathroom	Kitchen
Houses	2	1	2	1	7
Percentage	2	1	2	1	8

Figure D-39 – The location of the housing estate Vila Fernanda in Campo Grande.

Source: Google Maps.

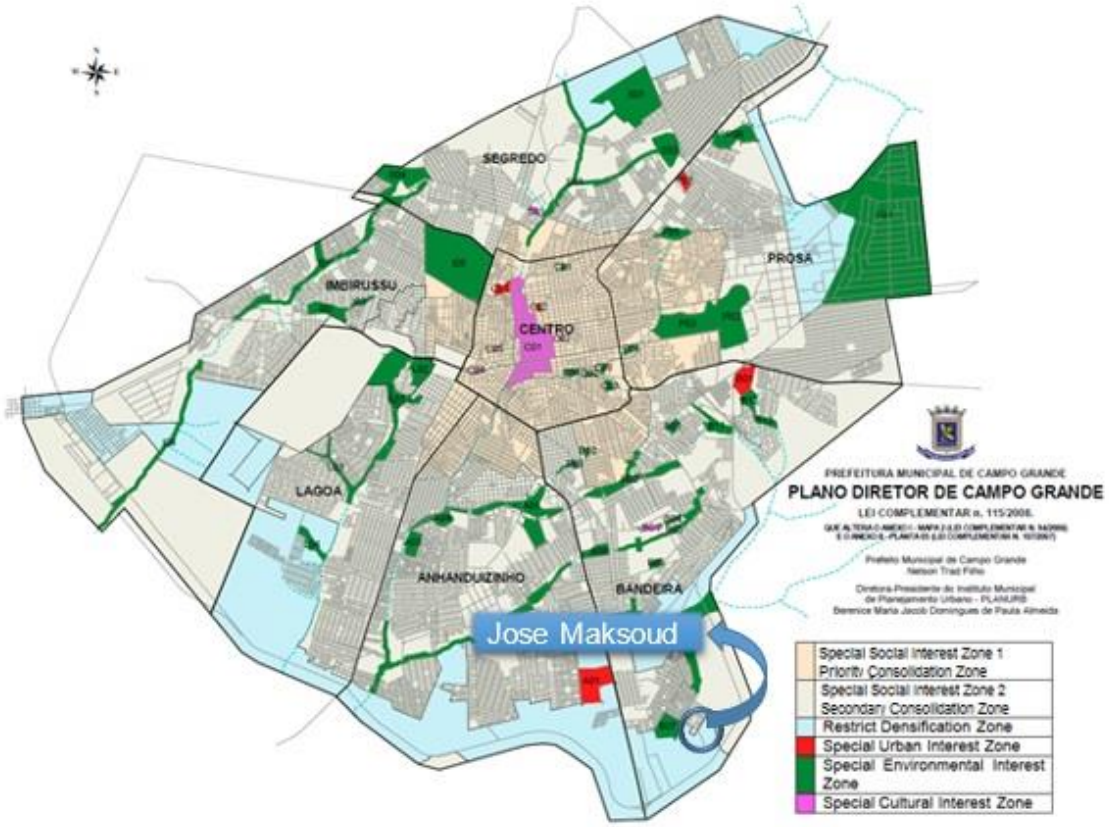
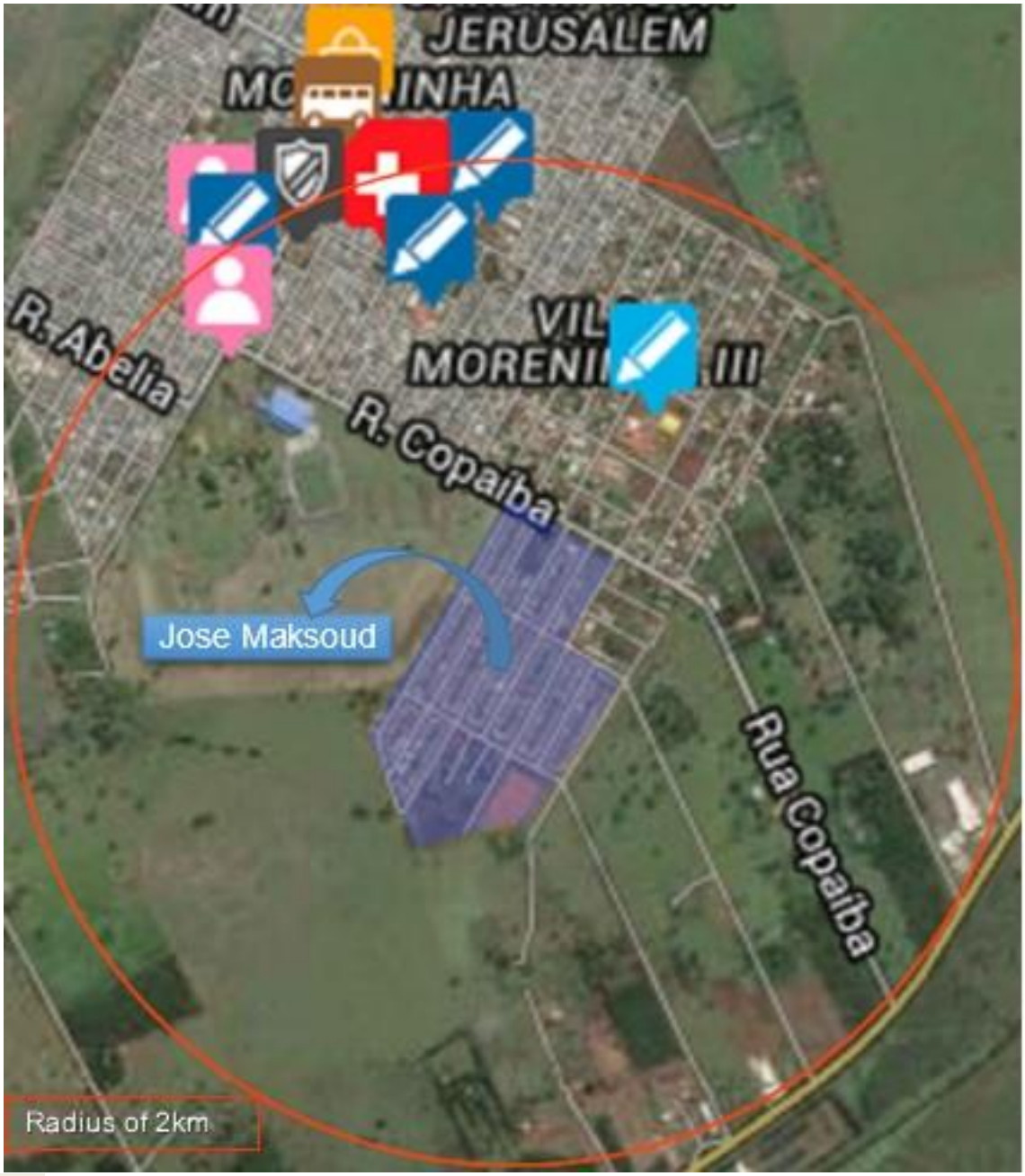


Figure D-40 – Municipal Urban Development Plan of Campo Grande.

Source: Adapted from Campo Grande. Available at: http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10 (Assessed: 10th Jan 2015).



Council school State school Health centre Council social assistance/Nurseries Bus station Street market Police station

Figure D-41 – Public services found within a radius of 2km from the centre of the housing estate Jose Maksoud.

Source: Adapted from Sisgram. Available at: http://www.capital.ms.gov.br/egov/sisgran/geo/index.php (Assessed: 10th Jan 2015).

Number of Residents

Table D-7 – Average of number of residents per house.

	Residents per house	Under 18	18 or more
Mean	4	2	2

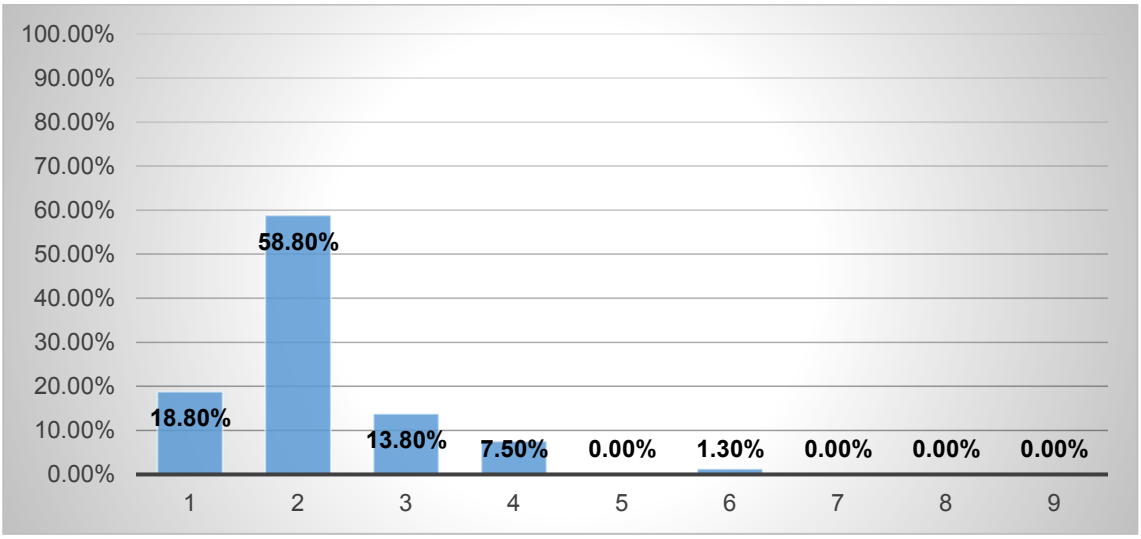


Figure D-42 – Percentage of number of adults per house (over 18 years-old).

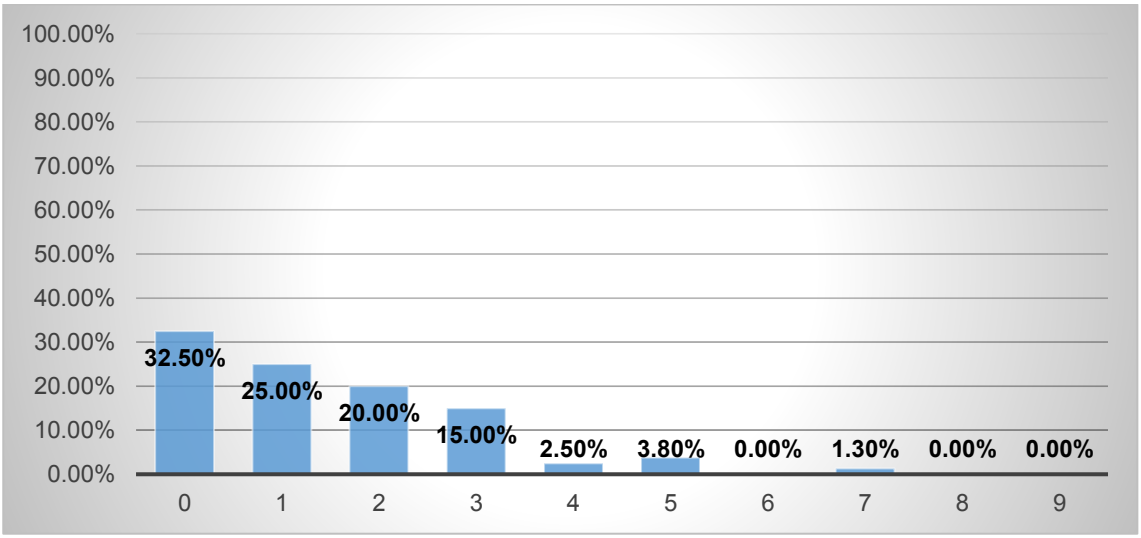


Figure D-43 – Percentage of number of children per house (under 18 years-old).

Employment Status of Residents

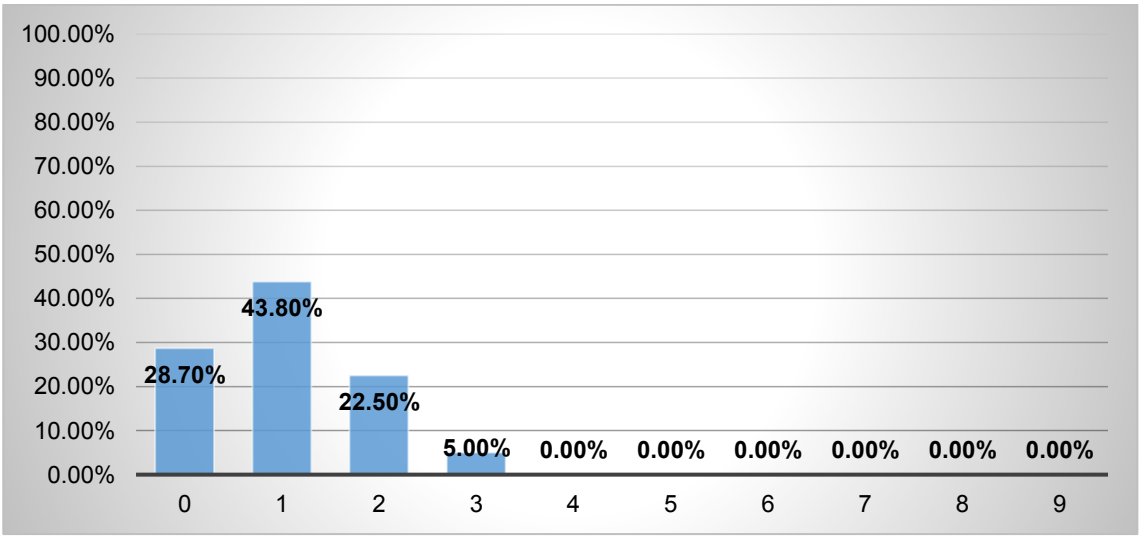


Figure D-44 – Percentage of number of people who work per house.

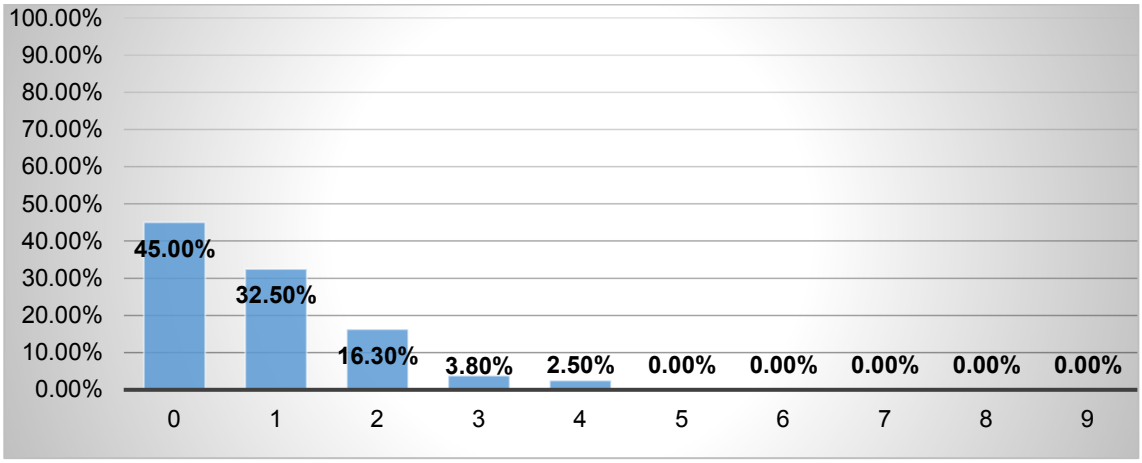


Figure D-45 – Percentage of number of people who do not work nor study per house.

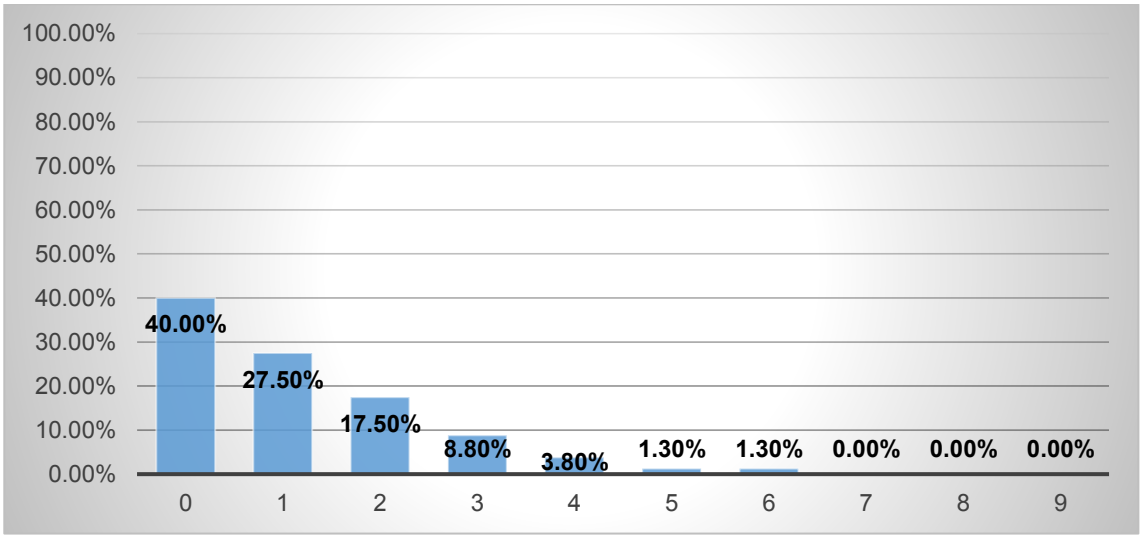


Figure D-46 – Percentage of number of students per house.

Alterations and Extensions

Table D-8 – Summary of Alterations to Existing Rooms.

	Bed 1	Bed 2	Living	Bathroom	Kitchen
Houses	0	0	0	0	1
Percentage	0	0	0	0	1

D.2.5 Housing Estate 5 – Ary Abussafi De Lima and Gregorio Correa

Introduction and Plans

Figure D-47 – The location of the housing estate Ary Abussafi De Lima and Gregorio Correa in Campo Grande.

Source: Google Maps.

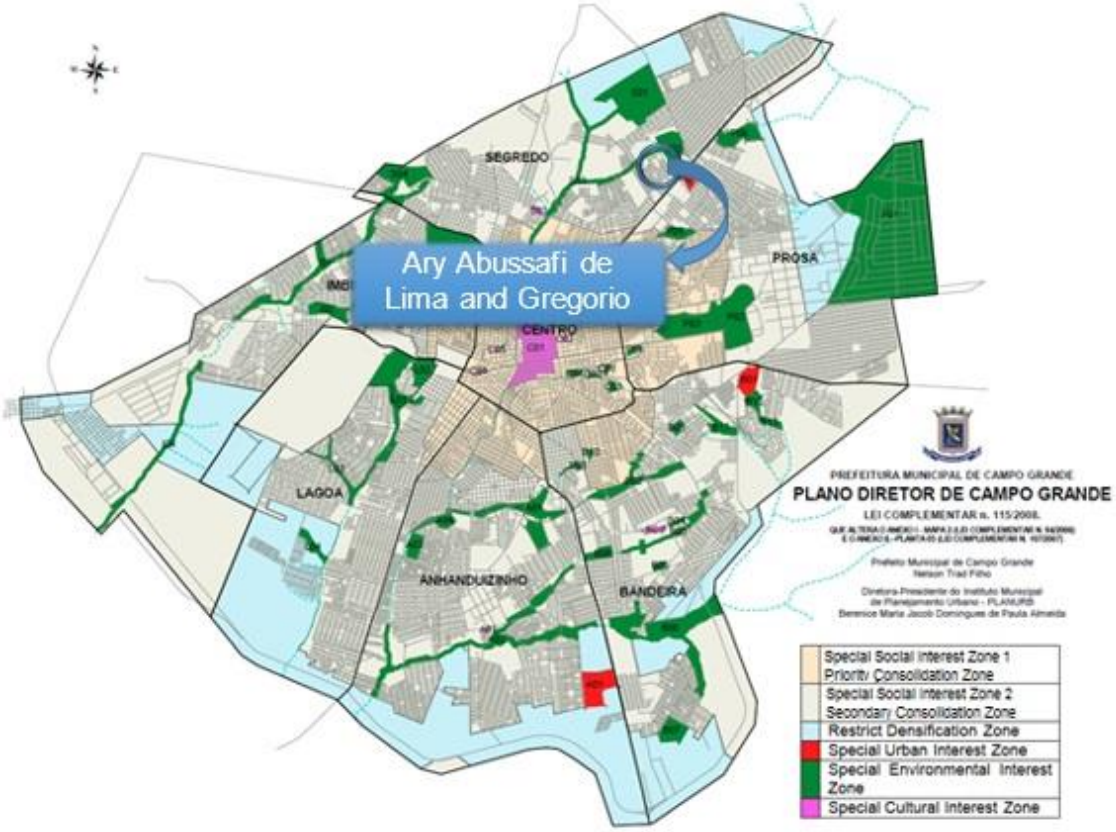


Figure D-48 – Municipal Urban Development Plan of Campo Grande.

Source: Adapted from Campo Grande. Available at: http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10 (Assessed: 10th Jan 2015).

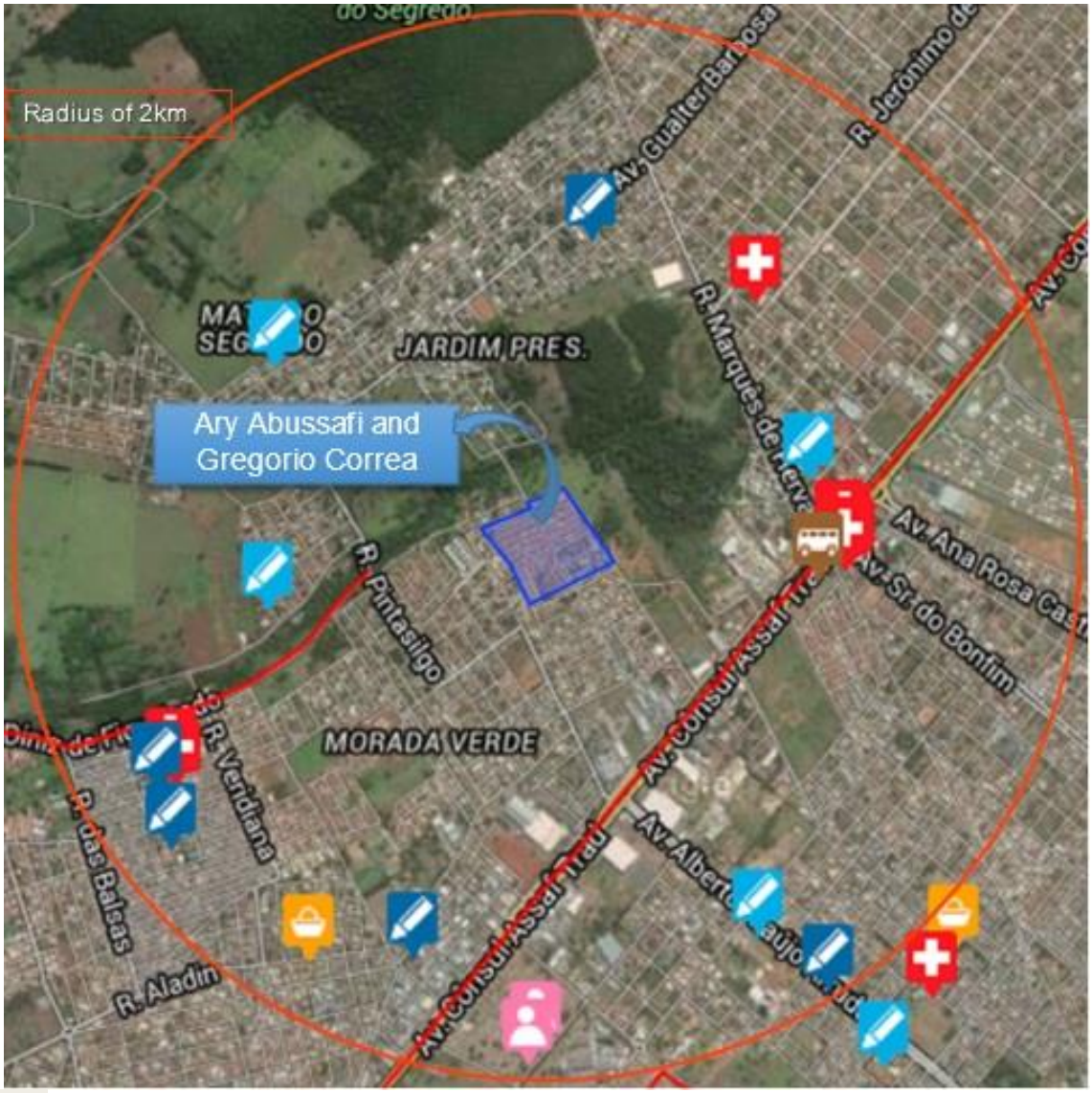


Figure D-49 – Public services found within a radius of 2km from the centre of the housing estate Ary Abussafi de Lima and Gregorio Correa.

Source: Adapted from Sisgram. Available at: http://www.capital.ms.gov.br/egov/sisgran/geo/index.php (Assessed: 10th Jan 2015).

Results of Quantitative Data Collection

Number of Residents

Table D-9 – Average of number of residents per house.

	Residents per house	Under 18	18 or more
Mean	4	2	2

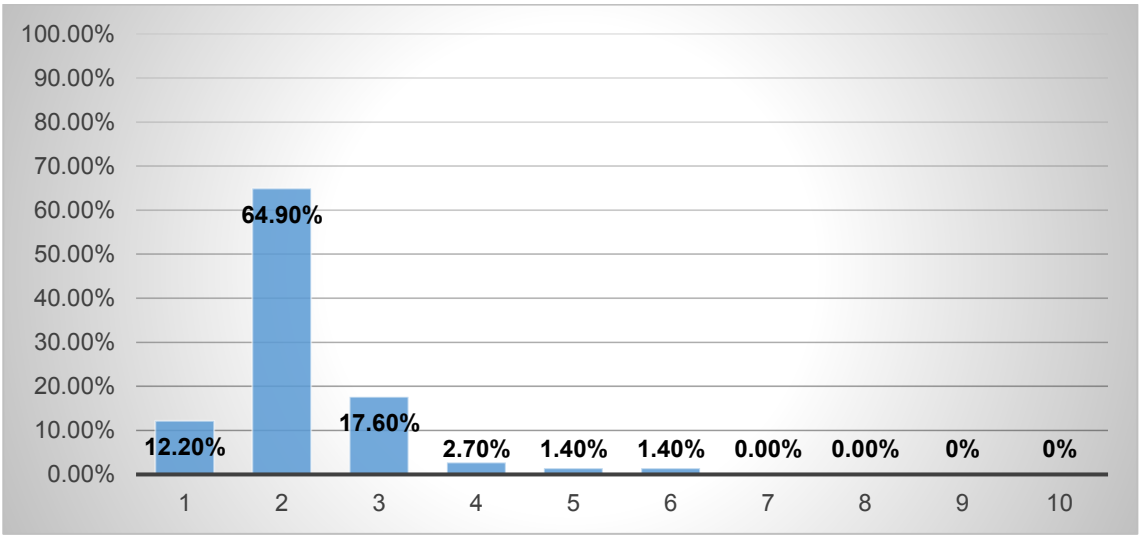


Figure D-50 – Percentage of adults per house (over 18 years-old).

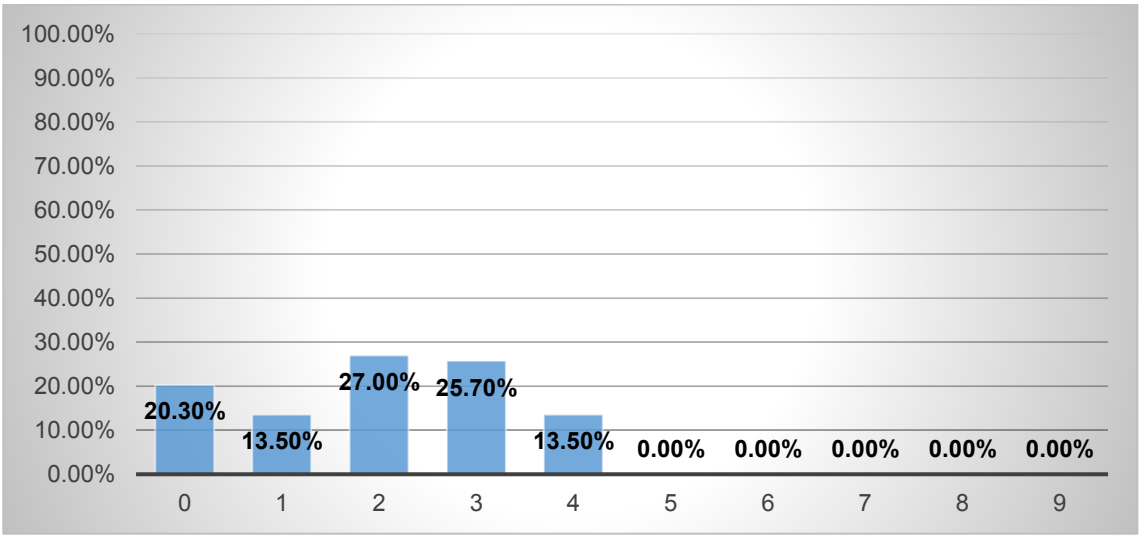


Figure D-51 – Percentage of number of children per house (under 18 years-old).

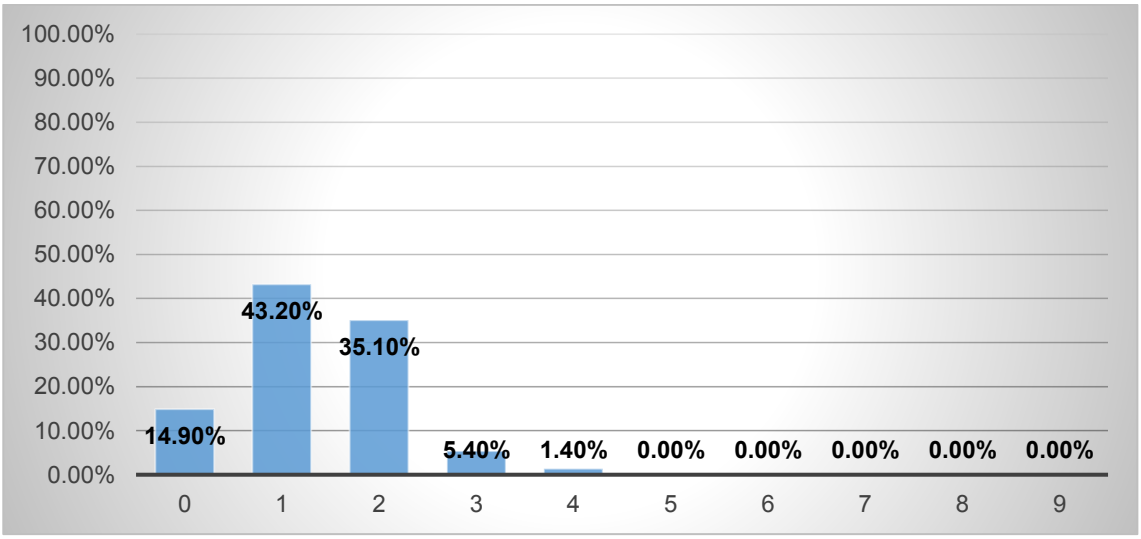


Figure D-52 – Percentage of number of people who work per house.

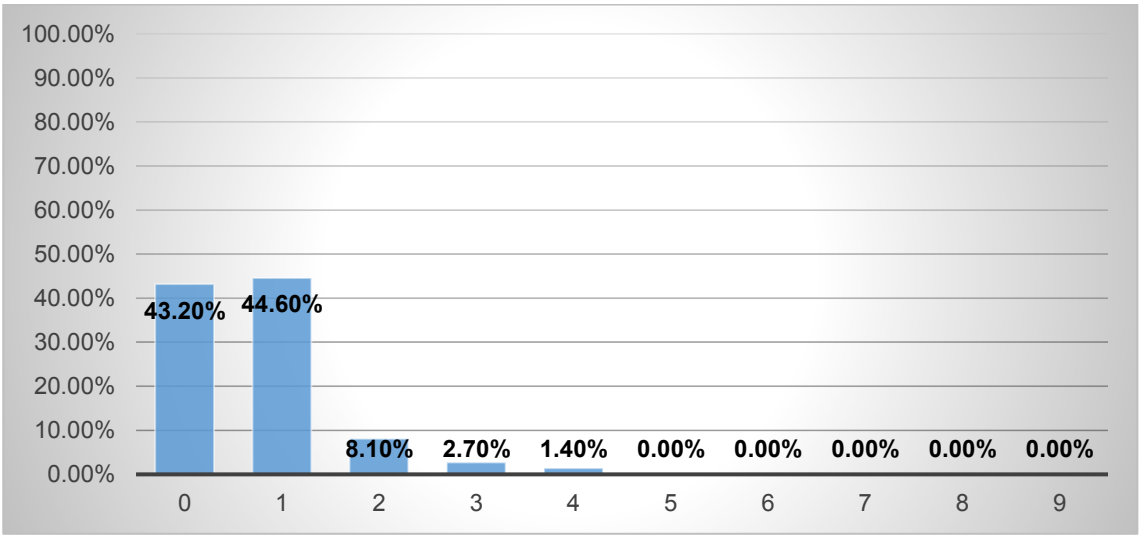


Figure D-53 – Percentage of number of people who do not work nor study per house.

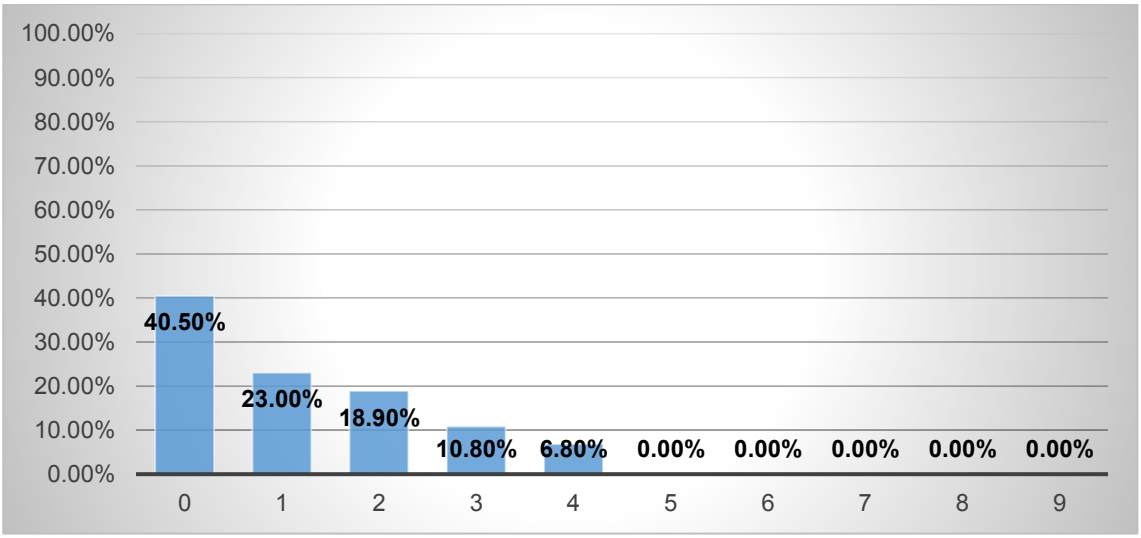


Figure D-54 – Percentage of number of students per house.

Alterations and Extensions

Table D-10 – Summary of Alterations to Existing Rooms.

	Bed 1	Bed 2	Living	Bathroom	Kitchen
Houses	0	0	1	0	1
Percentage	0	0	1	0	1

D.2.6 Housing Estate 6 – Celina Jallad

Figure D-55 – The location of the housing estate Celina Jallad in Campo Grande.

Source: Google Maps.

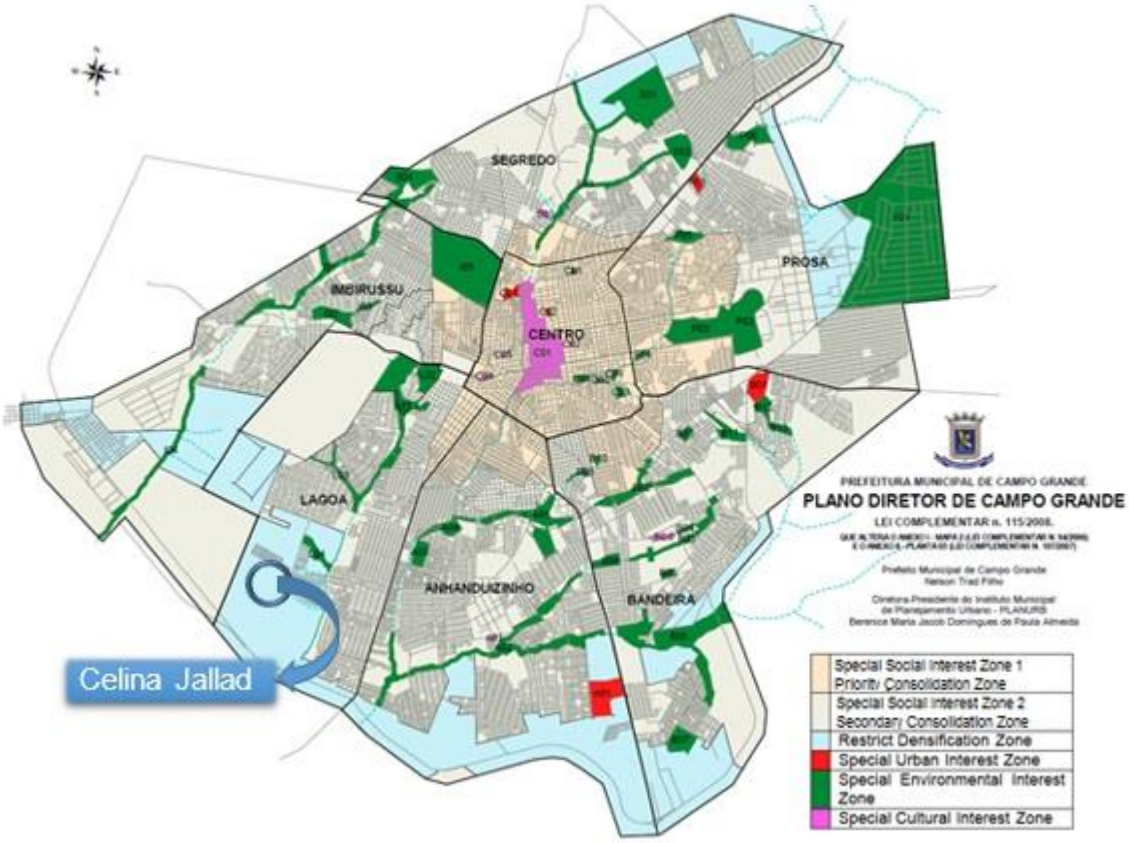


Figure D-56 – Municipal Urban Development Plan of Campo Grande.

Source: Adapted from Campo Grande. Available at: *http://www.pmcg.ms.gov.br/planurb/downloads?categoria=10* (Assessed: 10th Jan 2015).

Council school Health centre Cycle Paths

Figure D-57 – Public services found within a radius of 2km from the centre of the housing estate Celina Jallad.

Source: Adapted from Sisgram. Available at: http://www.capital.ms.gov.br/egov/sisgran/geo/index.php (Assessed: 10th Jan 2015).

Results of Quantitative Data Collection

Number of Residents

Table D-11 – Average of number of residents per house.

	Residents per house	Under 18	18 or more
Mean	4	2	2

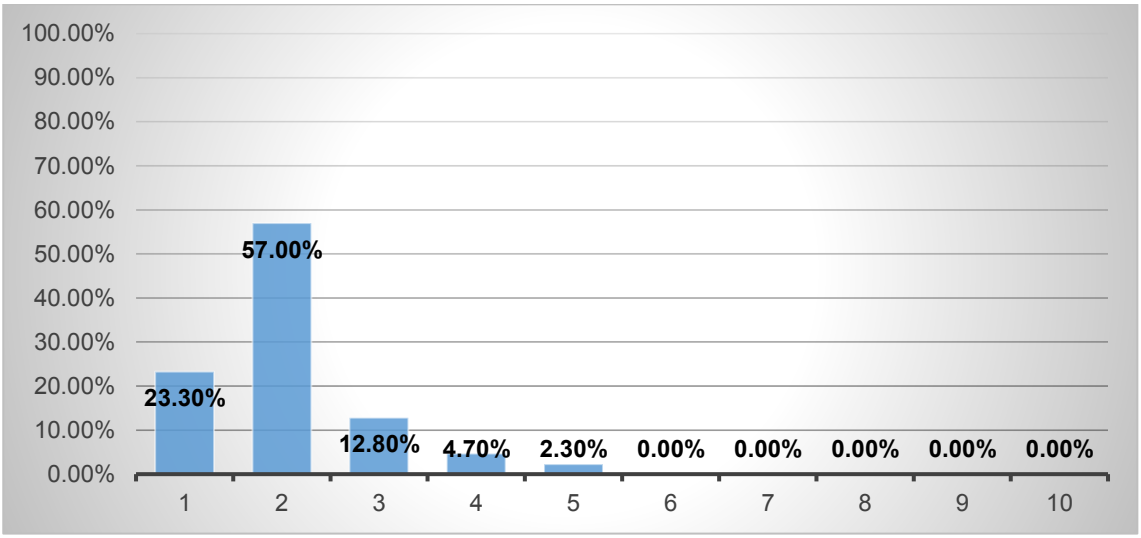


Figure D-58 – Percentage of number of adults per house (over 18 years-old).

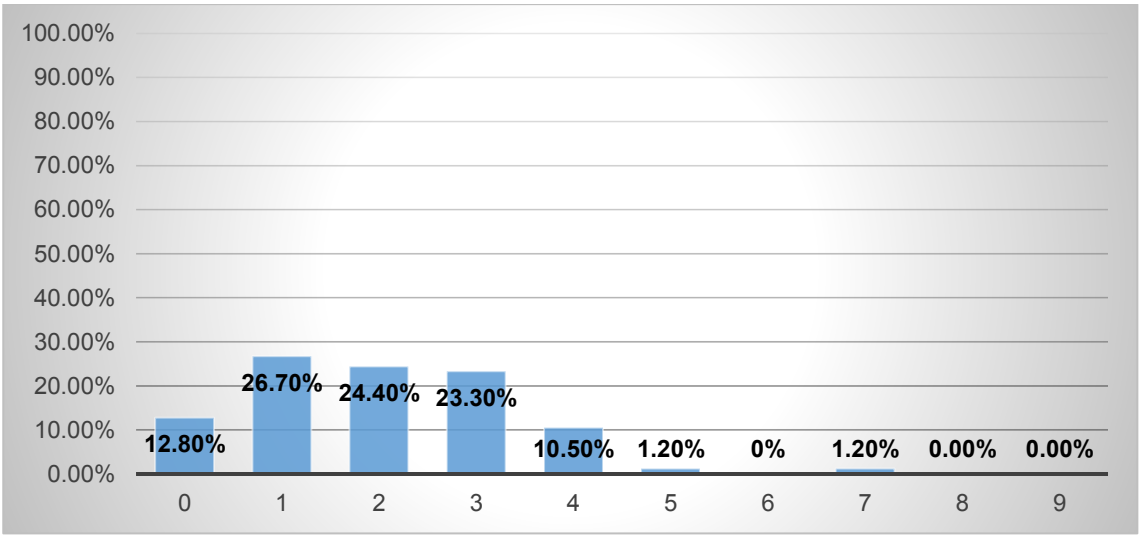


Figure D-59 – Percentage of children per house (under 18 years-old).

Employment Status of Residents

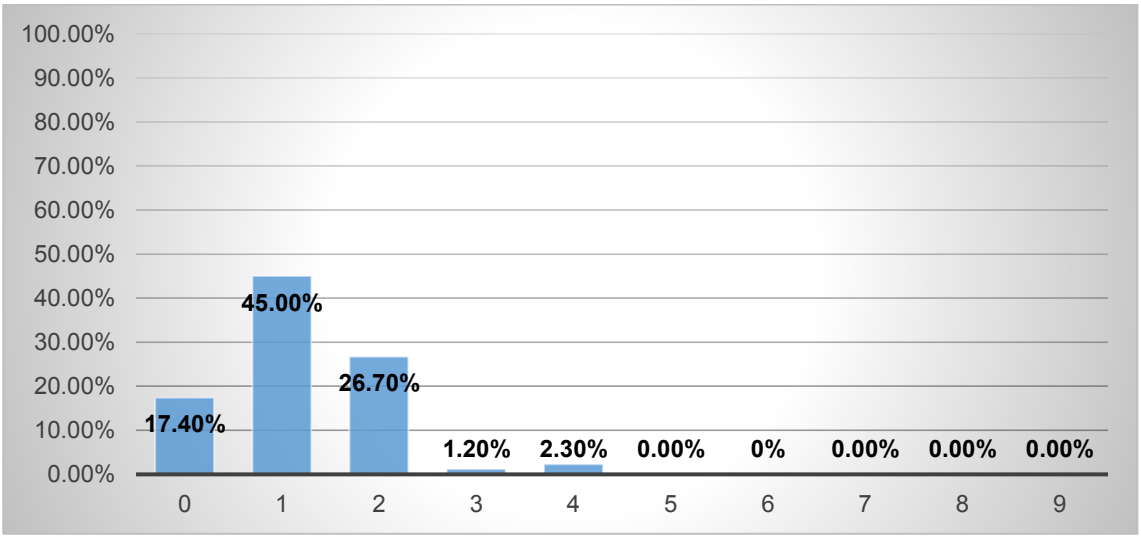


Figure D-60 – Percentage of number of people who work per house.

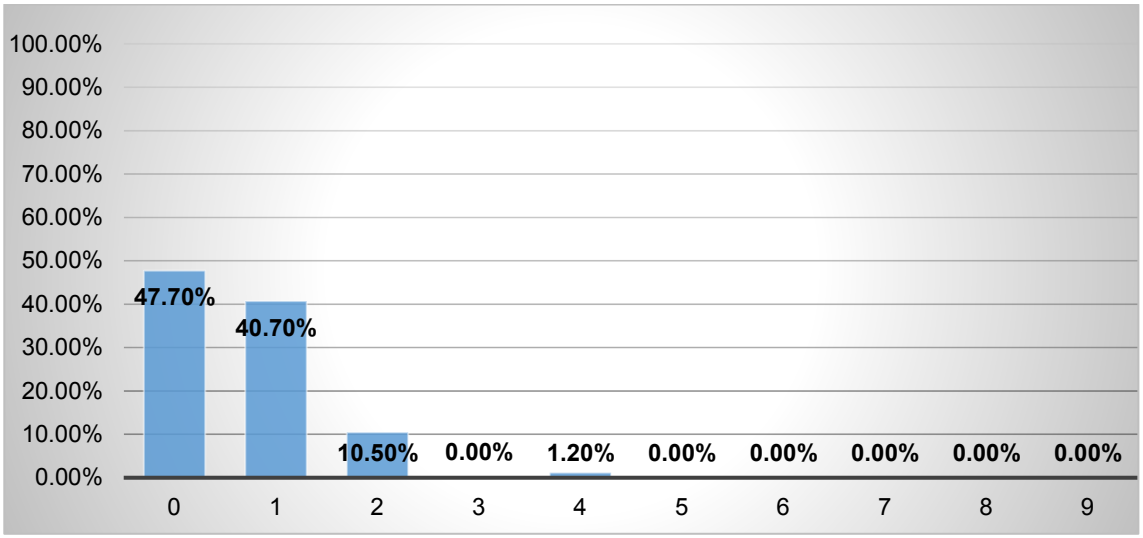


Figure D-61 – Percentage of number of people who do not work nor study per house.

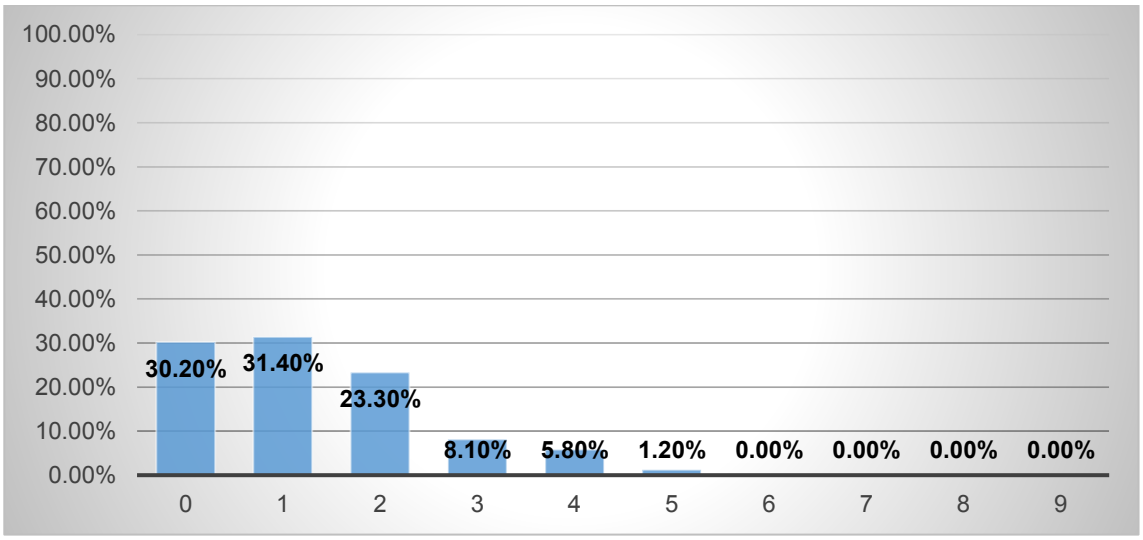


Figure D-62 – Percentage of number of students per house.

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